

September 13, 2012

Mr. David Lubianez
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, Massachusetts 01742-2751

Superfund Records Center
SITE: Fletcher's Paint
BREAK: 3.6
OTHER: 522 303

Subject: **Errata Sheets - Final Remedial Investigation Report**
Operable Unit 2, Fletcher's Paint Works and Storage Facility Superfund Site
Milford, New Hampshire
Contract No. W912WJ-05-D-0004, Task Order No. 05

Dear Mr. Lubianez:

Please find enclosed two (2) hard copies and five (5) compact disks of the errata sheets for the Final Remedial Investigation Report for Operable Unit 2 at the Fletcher's Paint Works and Storage Facility Superfund Site located in Milford, New Hampshire. In addition, the errata sheets have been distributed as indicated below.

RECIPIENT	NUMBER OF HARD COPIES	NUMBER OF COMPACT DISKS
Ms. Cheryl Sprague, USEPA	2	3
Mr. Bart Hoskins, USEPA	1	1
Mr. Rick Sugatt, USEPA	1	1
Ms. Robin Mongeon, NHDES	1	3
Mr. Ken Munney, USFWS	1	1
Mr. Ken Finkelstein, NOAA	1	1
Mr. Paul Hare, General Electric Company	1	1
Mr. Corey Averill, ARCADIS	1	1
Mr. Guy Scaife, Town of Milford	1	1
Mr. Tom Roy, Aries Engineering	0	1
Wadleigh Memorial Library	0	1

The errata sheets replace the following original (September 2011) report pages:

- Main body text in its entirety;
- Figure 3-3 (replaced by new figures 3-3a and 3-3b);
- Section 4.0 tables in their entirety;
- Tables 5-2 and 5-9;
- Appendix B in its entirety;
- Appendix C in its entirety;
- Appendix D in its entirety.

In addition, a new appendix, Appendix E, is provided.



SDMS DocID

522303



If you have any questions or require additional information, please contact me at (978) 452-9696, ext. 219.

Sincerely,
WATERMARK

Larry Pannell
Project Manager

Enclosures: Two (2) Errata Sheet Packages and Five (5) Electronic Copies on Compact Disk

cc:

Cheryl Sprague (USEPA)
Bart Hoskins (USEPA)
Rick Sugatt (USEPA)
Robin Mongeon (NHDES)
Ken Munney (USFWS)
Ken Finkelstein (NOAA)
Paul Hare (GE)
Corey Averill (ARCADIS)
Guy Scaife (Town of Milford)
Tom Roy, (Aries Engineering)
Wadleigh Memorial Library
File 05401-06/WLD0916

TABLE OF CONTENTS

SECTION	PAGE
EXECUTIVE SUMMARY.....	ES-1
1.0 INTRODUCTION.....	1-1
1.1 Site Background	1-1
1.2 Site History	1-2
1.3 Report Objectives	1-4
1.4 Report Organization	1-4
2.0 SITE CHARACTERISTICS.....	2-1
2.1 Ecological Setting.....	2-1
2.2 Local Hydrology.....	2-2
2.3 Natural and Cultural Resources	2-3
3.0 SUMMARY OF INVESTIGATIONS.....	3-1
3.1 Summary of Keyes Field Groundwater Investigations.....	3-1
3.1.1 OUI Investigations	3-1
3.1.2 Xtramart Investigations.....	3-2
3.1.3 Supplemental Groundwater Monitoring at Keyes Field	3-4
4.0 KEYES FIELD GROUNDWATER BASELINE HUMAN HEALTH RISK ASSESSMENT	4-1
4.1 Overview of Risk Assessment Process.....	4-1
4.1.1 Organization of Section	4-2
4.2 Site Description and Conceptual Site Model of Groundwater Exposures.....	4-3
4.2.1 Description of Keyes Field.....	4-3
4.2.2 Conceptual Site Model of Potential Exposure to Groundwater.....	4-3
4.3 Groundwater Data Evaluation	4-4
4.3.1 Data Review and Compilation	4-4
4.3.2 Data Reduction and Analysis.....	4-6
4.3.3 Identification of Chemicals of Potential Concern.....	4-6
4.3.4 Exposure Point Concentrations	4-7
4.4 Exposure Assessment	4-8
4.4.1 Receptor Parameters.....	4-8
4.4.1.1 Future Park Worker	4-8
4.4.1.2 Park User	4-8
4.4.1.3 Residents Using Groundwater-Supplied Tapwater	4-9
4.5 Toxicity Assessment.....	4-9
4.5.1 Toxicity Values Relative to Non-Carcinogenic Health Effects	4-10
4.5.2 Toxicity Factors Relative to Carcinogenic Health Effects.....	4-10
4.6 Risk Characterization	4-11
4.6.1 Intake, Dose and Airborne Exposure Estimation.....	4-11
4.6.2 Risk Calculation Protocols	4-12
4.7 Results of the Quantitative Risk Assessment of the On-Site Groundwater.....	4-13
4.7.1 Future Park Worker.....	4-13
4.7.2 Future Park User	4-14
4.7.3 On-Site Residents (Adult and Child).....	4-14

4.8	Screening Level Risk Assessment of the Upgradient Groundwater	4-14
4.8.1	Approach	4-14
4.8.2	Results	4-15
4.9	Uncertainty Analysis	4-15
4.9.1	Uncertainties Associated with Data Selection and Hazard Assessment	4-15
4.9.1.1	Available Wells and Sampling Results	4-15
4.9.1.2	Dynamic Conditions and Temporal Representativeness	4-16
4.9.1.3	Characteristics of the Data Sets and Their Impact on the Calculated EPCs	4-16
4.9.1.4	Selection of Chemicals of Potential Concern for Analysis in the HHRA	4-16
4.9.1.5	Background Concentrations	4-17
4.9.2	Uncertainties Associated with the Exposure Assessment	4-17
4.9.3	Uncertainties Associated with the Toxicity Assessment	4-17
4.10	Summary and Conclusions	4-18
5.0	SUMMARY OF SOUHEGAN RIVER INVESTIGATIONS	5-1
5.1	Historical Data – 1990s Investigations	5-1
5.2	2004 Investigations	5-1
5.2.1	PCBs	5-2
5.2.2	PAHs	5-2
5.2.3	Pesticides	5-2
5.2.4	Metals	5-2
5.3	2006 Investigations	5-2
5.3.1	Fish Investigations	5-2
5.3.2	Sediment Probing Survey	5-3
5.3.3	Sediment Investigations	5-3
5.4	2007 Investigations	5-4
5.5	Exposure Area Determination	5-4
6.0	SUMMARY OF SOUHEGAN RIVER RISK ASSESSMENTS	6-1
6.1	Human Health Risks	6-1
6.2	Ecological Risks	6-2
6.3	General Conclusions	6-5
7.0	SUMMARY AND CONCLUSIONS	7-1
7.1	Keyes Field Groundwater	7-1
7.2	Souhegan River	7-2
8.0	REFERENCES	8-1

FIGURES

Figure 1-1	Site Plan
Figure 2-1a	100-Year Flood Plain Area
Figure 2-1b	100-Year Flood Plain Area
Figure 2-2	Groundwater Flow Directions
Figure 3-1	On-site and Upgradient Groundwater Monitoring Wells for OU2
Figure 3-2	Xtramart Site Plan
Figure 3-3a	Xtramart Groundwater Management Zone
Figure 3-3b	Proposed Groundwater Management Zones in the Vicinity of Keyes Well
Figure 3-4	Xtramart Watertable Contours, October 2010
Figure 3-5	BTEX Contaminant Concentration Plan, October 20, 2010 Data
Figure 3-6	Proposed OU1 Groundwater Management Zone
Figure 3-7	OU1 Watertable Contours, January 2011
Figure 3-8	Groundwater Analytical Results with Comparison to ICLs, January 2011
Figure 5-1	2004, 2006, and 2007 Fish, Sediment, and Soil Sampling Locations
Figure 5-2	2004 Supplemental Sediment Investigation
Figure 5-3	2006 Fish and Sediment Sampling Locations
Figure 5-4	Results of Sediment Probing Activities
Figure 5-5	2007 Sediment and Soil Sampling Locations
Figure 5-6	Rope Swing / Hot Spot Area

TABLES

Table 3-1	Well Construction Information
Table 4-1	Selection of Exposure Pathways
Table 4-2.1	Summary of Data Considered for the Human Health Risk Assessment
Table 4-2.2	Occurrence, Distribution, and Selection of Chemicals of Potential Concern
Table 4-3.1	Exposure Point Concentration Summary
Table 4-4.1	Values Used for Daily Intake Calculations
Table 4-4.2	Values Used for Absorbed Dose Calculations
Table 4-4.3	Absorbed Dose Calculation for the Park Worker
Table 4-4.4	Absorbed Dose Calculation for the Park User
Table 4-4.5	Absorbed Dose Calculation for the Adult Resident
Table 4-4.6	Absorbed Dose Calculation for the Child Resident
Table 4-5.1	Non-Cancer Toxicity Data – Oral/Dermal
Table 4-5.2	Non-Cancer Toxicity Data – Inhalation
Table 4-6.1	Cancer Toxicity Data – Oral/Dermal
Table 4-6.2	Cancer Toxicity Data – Inhalation
Table 4-7.1	Calculation of Chemical Cancer Risks and Non-Cancer Hazards for the Park Worker
Table 4-7.2	Calculation of Chemical Cancer Risks and Non-Cancer Hazards for the Park User
Table 4-7.3	Calculation of Chemical Cancer Risks and Non-Cancer Hazards for the Adult Resident
Table 4-7.4	Calculation of Chemical Cancer Risks and Non-Cancer Hazards for the Child Resident
Table 4-8.1	Screening Level Risk Assessment of the Up-Gradient Well Data
Table 5-1	Historic Investigations of the Souhegan River
Table 5-2	2004 Sediment Sampling Analytical Results
Table 5-3	Summary of Supplemental Fish Collection Activities
Table 5-4	Summary of GE and EPA Fish Tissue Sampling Data for PCBs (Aroclors and Congeners)
Table 5-5	Summary of GE Fish Tissue Sampling Data for Select Chemical Constituents and Physical Properties
Table 5-6	Summary of Sediment Probing Activities – Transects
Table 5-7	Summary of Sediment Transect Descriptions / Observations
Table 5-8	Summary of Sediment Probing Activities – Deposits
Table 5-9	2006 Sediment Sampling Analytical Results
Table 5-10	2007 Sediment and Surface Soil Sampling Analytical Results

APPENDICES

Appendix A	Site Visit Photographic Log –April 2010
Appendix B	Summary of Data Sets Used for the Human Health Risk Assessment
	- Table B-1 On-Site Groundwater Data Set
	- Table B-2 Up-Gradient Groundwater Data Set
	- Table B-3 Background Groundwater Data Set
Appendix C	Output of the USEPA ProUCL Software for the On-Site Groundwater Data Set
Appendix D	Sample Intake/Exposure and Risk/Hazard Calculations
Appendix E	Data Sets Used for the Human Health Risk Assessment – Groundwater
	- Table E-1 2007 Groundwater Data From USEPA
	- Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Report
	- Table E-3 2009 Groundwater Data from USEPA
	- Table E-4 Select Groundwater Data from Xtramart Reports

ACRONYMS

ADL	Arthur D. Little, Inc.
AGQS	Ambient Groundwater Quality Standards
ARAR	Applicable or Relevant and Appropriate Requirement
AS	Air Sparge
ATSDR	Agency for Toxic Substances and Disease Registry
BEHP	bis(2-ethylhexyl)phthalate
BERA	Baseline Ecological Risk Assessment
BHHERA	Baseline Human Health and Ecological Risk Assessment
BNA	Base/Neutral/AcidExtractable Compounds
BSAF	Biota-Sediment Accumulation Factor
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CalEPA	California Environmental Protection Agency
CAS	Chemical Abstract Service
CBR	Critical Body Residue
CDI	Chronic Daily Intake
CEA	Corporate Environmental Advisors, Inc.
CENAE	U.S. Army Corps of Engineer, New England District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm/sec	centimeters per second
COPC	Chemical of Potential Concern
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
CTE	Central Tendency Estimate
DAD	Dermally Absorbed Dose
DDE	dichlorodiphenyldichlorethylene
DL	Detection Limit
DNAPL	Dense Non-Aqueous Phase Liquid
DOE	Department of Energy
EC	Exposure Concentration
EF	Exposure Frequency
EFR	Enhanced Fluid Recovery
ELCR	Excess Lifetime Carcinogenic Risk
EPC	Exposure Point Concentrations
FFS	Focused Feasibility Study
FS	Feasibility Study
GE	General Electric
GMP	Groundwater Management Permit
GMZ	Groundwater Management Zone
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
ICL	Interim Cleanup Level
IRIS	Integrated Risk Information System
Keyes Well	Keyes Field Municipal Well
Kg	Kilograms
L	Liter
LNAPL	Light Non-Aqueous Phase Liquid
LOAELs	Lowest Observed Adverse Effects Level

MCL	Maximum Contamination Level
MCLG	Maximum Contaminant Level Goal
mg	Milligrams
MTBE	methyl-tert butyl ether
NHDES	New Hampshire Department of Environmental Services
NOAA	National Oceanic and Atmospheric Administration
NOAELs	No Observed Adverse Effects Levels
NPL	National Priorities List
OU1	Operable Unit 1
OU2	Operable Unit 2
PAHs	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl Compound
PPRTV	Provisional Peer Reviewed Toxicity Value
RAGS	Risk Assessment Guidance for Superfund
RAP	Remedial Action Plan
RfC	Reference Concentration
RfD	Reference Dose
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
ROD	Record of Decision
RSL	Regional Screening Level
RW	Recovery Well
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
sMCL	Secondary Maximum Contaminant Level
SQG	Sediment Quality Guideline
STL	Severn Trent Laboratories
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
TBC	To Be Considered
Tetra Tech	Tetra Tech EC, Inc.
TEQ	Toxic Equivalency
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbon
UCL	Upper Confidence Limit
µg/L	Micrograms/Liter
UR	Unit Risk
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VPH	Volatile Petroleum Hydrocarbon
Watermark	Watermark Environmental, Inc.
XM	Xtramart

EXECUTIVE SUMMARY

This abbreviated Remedial Investigation (RI) Report was prepared for Operable Unit 2 (OU2) at the Fletcher's Paint Works and Storage Facility Superfund Site (Fletcher's Paint Superfund Site) along the Souhegan River in Milford, New Hampshire (Figure 1-1). The RI Report was prepared by Watermark Environmental Inc. (Watermark), with assistance from Tetra Tech EC, Inc. (Tetra Tech), under contract W912WJ-05-D-0004 Task Order 05 to the United States Army Corps of Engineers (USACE), New England District (CENAE).

The Fletcher's Paint Superfund Site was officially listed on the National Priorities List (NPL) by the United States Environmental Protection Agency (USEPA) on March 31, 1989, as a result of investigations related to the 1984 closure of the Keyes Municipal Supply Well (Keyes Well). In 1984, volatile organic compounds (VOCs) were detected in the nearby Keyes Well by the New Hampshire Department of Environmental Services (NHDES - formerly known as the New Hampshire Water Supply and Pollution Control Commission). This triggered the removal of the Keyes Well from service and prompted a series of investigation and remediation activities to determine and address the contaminant sources.

Fletcher's Paint manufactured, stored, and sold paints and stains for residential use from 1949 to 1991. Annual production was 25,000 to 35,000 gallons of both water-based paints and solvent-based oil paints. Manufacturing occurred at the Elm Street Area, and a wood-frame building in the Mill Street Area was used for storage of bulk paint pigments. The Mill Street Area contained two sheds that were used by Fletcher's Paint to store bulk paint pigments for over 25 years. During the Fletcher's Paint operations, hundreds of drums of hazardous substances were stored outside at both the Elm and Mill Street Areas, ultimately leading to the release of various hazardous substances to the surrounding environment. Although polychlorinated biphenyl compounds (PCBs) were not extensively used in the paint operations, "scrap pyranol", which contained various mixtures of PCBs, trichlorobenzene, and trichloroethylene, was used and resold for other non-paint related purposes such as a dust suppressant, heating oil, and as a compound for the roofing cement industry. The Fletcher's Paint Works also used the scrap pyranol to suppress the dust at the Elm Street facility. These activities resulted in ubiquitous surface soil contamination, as well as contamination of sub-surface soil and groundwater from infiltration and contamination of Souhegan River sediments via runoff and groundwater discharge.

In April of 1996, a Remedial Investigation/Feasibility Study (RI/FS) was completed for OU1. This study and other supplemental studies have revealed that soils, sediments, surface water, and groundwater are contaminated with volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, PCBs, and pesticides as a result of activities that occurred at the Fletcher's Paint properties. In addition, the RI studies showed that surface water and sediment in the Souhegan River was contaminated and certain fish and biota within the river were potentially impacted as a result of the contamination. PCB, VOC, SVOC, and heavy metal contamination from the Elm Street and Mill Street Areas has migrated to the river via former Fletcher's Paint manufacturing activities, improper storage of drums, and runoff from the Elm Street Area, as well as surface water runoff from Mill Street through the drainage ditch/culvert system (Figure 1-1). Additional details regarding the characterization of the contamination at the Fletcher's Paint Superfund Site can be found in the 1994 RI (ADL, 1994a), 1998 Record of Decision (ROD) (USEPA, 1998), 2009 ROD Amendment (USEPA, 2009a), 2009 Pre-Design Investigation Report (BBL, 2009), and the Administrative Record.

The Fletcher's Paint Superfund Site was divided into two Operable Units to investigate apparent releases of hazardous substances to the environment. OU1 consists of the Elm Street Area, Mill Street Area, and a drainage ditch/culvert system connecting these two areas. It also includes a plume of groundwater contamination extending from the Mill Street Area through the Elm Street Area to the Souhegan River. A remedy was selected for OU1 in 1998 and amended in 2001, 2009, and 2010. The remedy for OU1 includes the excavation and off-site treatment/disposal of approximately 28,000 cubic yards of PCB contaminated soils, containment of residual contamination, and long term monitoring of the contaminated groundwater. Documents related to the OU1 cleanup, including the Remedial Design are available on the internet at www.epa.gov/ne/superfund/sites/fletcher.

OU2, which is the focus of this abbreviated RI, is comprised of the Keyes Memorial Field and Keyes Memorial Pool (Keyes Field) groundwater and the section of the Souhegan River located in the vicinity of the Elm Street

Area (Figure 1-1). The Keyes Field area is currently the location of a municipal park which is comprised of the Keyes Memorial Field complex and the Keyes Memorial Pool. Keyes Field includes baseball and softball diamonds, a soccer field, and other outdoor recreational courts, picnic, and play areas. A small structure housing the Keyes Well is located on-site on the northern end near the Souhegan River. While the Keyes Well was in operation, contamination in the groundwater resulting from the past activities at the Mill Street and Elm Street Areas was drawn north and west through the Keyes Field to the Keyes Well. Contaminants related to the Fletcher's Paint Superfund Site were found in the Keyes Well in 1984. With the removal of the Keyes Well from service in the 1980s, groundwater flow from the Mill Street and Elm Street Areas is no longer toward the Keyes Well, but generally north from the Mill Street Area towards Elm Street, then northwest towards Keyes Field, and finally north/northeast to the Souhegan River, ultimately discharging to the Souhegan River.

The Souhegan River is located north of the Elm Street Area and flows from west to east, through the Town of Milford. It eventually discharges into the Merrimack River, which is located about 12 miles downstream of the Elm Street Area (ARCADIS, 2007).

The Souhegan River investigations have focused specifically on the area of the river just upstream of the Elm Street Area down to the Goldman Dam. The Goldman Dam, which is located approximately one-half mile downstream from the Elm Street Area, is the first impoundment downstream of the Site. Just below the Goldman Dam is the McLane Dam, which is the last impoundment located between the Souhegan River and the Merrimack River (Figure 1-1). Additional investigations in the Souhegan River between the Goldman and McLane Dams were conducted in August 2011 as part of an ongoing Dam Removal and River Restoration Feasibility Study being conducted by the Town of Milford.

The overall objective of this abbreviated RI Report for OU2 is to present a summary of the various investigations conducted at the Fletcher's Paint Superfund Site as part of OU2 within the Keyes Field groundwater and Souhegan River, and document the nature and extent of contamination within the OU2 study area. For Keyes Field, historic groundwater data are summarized and a baseline Human Health Risk Assessment (HHRA) is presented in this report for human health exposures related to Keyes Field groundwater. This OU2 RI Report also summarizes the risk assessment conducted on the Souhegan River for human and ecological receptors (Battelle, 2011).

Keyes Field Groundwater

Groundwater investigations in the vicinity of Keyes Field were initiated as a result of the 1984 closure of the Keyes Well. The Keyes Well, located approximately 800 feet northwest of the Elm Street Area, operated from 1972 to 1984. Subsequent to the closure of the Keyes Well, numerous groundwater investigations have been conducted in the vicinity of Keyes Field.

Groundwater flow in the vicinity of Keyes Field is in a north-northeast direction across Keyes Field and discharges into the Souhegan River. From the Mill Street Area, groundwater flows north toward Elm Street and then north-northwest toward the Souhegan River. Under current, non pumping conditions, Keyes Field is located hydraulically upgradient of OU1 and downgradient of the Xtramart gasoline station located on Elm Street (Figure 1-1).

Early investigations of Keyes Field groundwater conducted as part of OU1 found elevated concentrations of VOCs [primarily benzene, toluene, ethylbenzene, and xylene (BTEX)] in several of the Keyes Field wells. The highest concentrations of VOCs were detected along the southern edge of Keyes Field on the northern side of Elm Street across from the gasoline station (currently Xtramart). The OU1 RI (ADL, 1994a) concluded that the VOC contamination observed in groundwater beneath Keyes Field was assumed to have been transported from an off-site location and not associated with historic releases from the Mill Street or Elm Street Areas. At that time, the VOC contamination observed in groundwater appeared to have originated from a source near the intersection of Elm and West Streets and migrated through the groundwater in a northeasterly direction across Keyes Field toward the Souhegan River.

The Xtramart has operated as a gasoline station since 1956 when the property was owned by the Atlantic Richfield Company. The property has been regulated by the NHDES since 1994. Numerous subsurface

investigations, groundwater monitoring events, and field observations have been completed to determine the extent of contamination in soil and groundwater. A soil vapor extraction (SVE)/air sparge (AS) remediation system has been in operation at Xtramart since May 2007. Groundwater monitoring of the Xtramart well network has been conducted routinely since 1996. Elevated levels of BTEX and methyl tert-butyl ether (MTBE) that were detected in wells along the southern edge of Keyes Field for the first several years have declined significantly over the last seven years (CEA, 2010b).

Supplemental groundwater monitoring has been conducted at Keyes Field by General Electric and USEPA since 2007. Significant results from these sampling events include the detection of MTBE at a concentration of 49 µg/L in KW01D (50 µg/L in the duplicate sample), which exceeds the NHDES standard for MTBE of 13 µg/L. BTEX has not been detected in any of the on-site wells at Keyes Field in the past four years.

The quantitative Human Health Risk Assessment (HHRA) performed relative to potential exposures to the on-site groundwater focused on a future Park Worker, a future Park User, and hypothetical future Residents who could be exposed to the on-site groundwater as tapwater in a domestic setting if the Keyes Well were to be re-activated and the groundwater used to supply the public water system. The exposure scenarios evaluated for the future Park Worker and the future Park User assumed that all water used at the park for all needs (e.g., drinking, irrigation, washing, filling the pool) would come from the on-site groundwater. This included potential ingestion (i.e., drinking) as well as potential dermal absorption exposures due to direct contact with the groundwater during these uses. It must be emphasized that the water currently available at the park is municipally supplied from other sources (i.e., not the on-site groundwater). The calculated risks for the future Park Worker and the future Park User under these potential future exposure scenarios did not exceed the USEPA cancer risk reference range or non-cancer thresholds. The calculated risks for the hypothetical future Resident (adult and child) under the scenario of the on-site groundwater as a municipal water supply did exceed both the USEPA cancer risk reference range and the non-cancer hazard index (HI) threshold of one. However, the exceedance of the USEPA cancer risk reference range was almost entirely due to a one time detection of arsenic at a concentration just over the detection limit and maximum contaminant level (MCL) standard of 10 µg/L. This detection of arsenic was determined to likely be due to the naturally occurring arsenic in the area's bedrock and lithology. The only other compound in the on-site groundwater that contributed to any significant degree to the calculated risks was MTBE. However, MTBE was only detected in one well in 2007 and was very likely due to upgradient off-site sources that are currently being addressed under NHDES regulations. As such, the MTBE is not indicated to be due to any release from the Fletcher's Paint Superfund Site and is not expected to pose a long-term concern if upgradient sources continue to be addressed and monitored.

The screening level risk assessment for the upgradient groundwater revealed that this groundwater has or is likely to have contaminant levels that exceed thresholds for a public drinking water supply. Characterizations of the hydraulic conductivities in the overburden and in the underlying bedrock (USGS, 1996) suggest that a cone of depression would likely be created if the Keyes Well were to be re-activated to extract water for use as a public supply. This pumping would be likely, based on past experience, to draw groundwater from these upgradient locations and re-contaminate the on-site groundwater. A Keyes Well re-activation scenario should not be considered until the various sources of the upgradient contamination are identified and remediated. It is assumed, given the ongoing remediation and groundwater monitoring efforts associated with the Xtramart site under the NHDES regulations (NHDES Site No. 199404027), that the contamination associated with the Xtramart property is unlikely to impact Keyes Field groundwater in the future if the Keyes Well remains inactive until this off-site source has been remediated.

The HHRA for the Keyes Field groundwater suggests that there are no current human health risks related to the on-site Keyes Field groundwater and hypothetical future risks are related to potential migration of off-site contamination into Keyes Field should the Keyes Well be returned to service. The hypothetical future risks can be addressed by preventing the installation of new wells and use of the Keyes Well until these off-site sources are remediated or otherwise addressed. In addition, ongoing groundwater monitoring programs associated with historic releases at Elm Street and Mill Street Areas (OU1) and the Xtramart property will continue to be conducted to assess contaminant migration and concentration trends.

Souhegan River

Multiple investigations of the Souhegan River adjacent and downstream of the Elm Street Area have been conducted and a supplemental Baseline Human Health and Ecological Risk Assessments (BHHERA) (Battelle, 2011) was prepared to incorporate all available data and update the risk assessment to human health and the environment associated with the Fletcher's Paint Superfund Site.

The supplemental BHHERA concluded that there is unacceptable risk to human and ecological receptors from exposure to PCBs in Souhegan River sediments adjacent to the Elm Street Area and above the Goldman Dam. There is risk to human receptors from direct contact with sediments and fish ingestion, with fish ingestion risks being of particular concern. There is also some risk to benthic invertebrates from exposure to metals and pesticides in sediment. The observed risk is unacceptable in these areas relative to background Area C located upstream from the Elm Street Area. A PCB Hot Spot Area was identified in the Souhegan River adjacent to the Elm Street Area where there are statistically significant elevated concentrations of PCBs. Within the PCB Hot Spot Area there are also elevated concentrations of PCBs in sub-surface sediments that could pose greater risk to human and ecological receptors if storm and flood events expose these deeper sediment layers. Consequently, the PCB Hot Spot Area could provide a continuing source of bioavailable PCBs to the Souhegan River if not remediated.

A Focused Feasibility Study (FFS) is proposed to be conducted for the Souhegan River study area to develop an appropriate range of remedial alternatives for detailed analysis to address unacceptable risks posed to human health and the environment due to contamination associated with the Fletcher's Paint Superfund Site.

1.0 INTRODUCTION

This abbreviated Remedial Investigation (RI) Report was prepared for Operable Unit 2 (OU2) at the Fletcher's Paint Works and Storage Facility Superfund Site (Fletcher's Paint Superfund Site) along the Souhegan River in Milford, New Hampshire (Figure 1-1). The RI Report was prepared by Watermark Environmental Inc. (Watermark), with assistance from Tetra Tech EC, Inc. (Tetra Tech), under contract W912WJ-05-D-0004 Task Order 05 to the United States Army Corps of Engineers (USACE), New England District (CENAE).

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the Superfund Amendments and Reauthorization Act (SARA) of 1986, and under the authority of the United States Environmental Protection Agency (USEPA), an RI was previously conducted for Operable Unit 1 (OU1) at the Fletcher's Paint Superfund Site [Arthur D. Little (ADL), 1994a]. Prior to the USEPA separating the Fletcher's Paint Superfund Site into OU1 and OU2 and as part of that RI, a Preliminary Ecological Assessment (ADL, 1994b) and an Ecological Risk Assessment (ADL, 1997) were conducted on the Souhegan River. In addition, General Electric (GE) performed supplemental investigations of the Souhegan River and prepared a Supplemental Investigation Data Summary Report (ARCADIS, 2007). The USACE was tasked by the USEPA to complete the OU2 RI and conduct a Supplemental Baseline Human Health and Ecological Risk Assessment (BHHERA) (Battelle, 2011). The BHHERA was prepared for the Souhegan River study area of the Fletcher's Paint Superfund Site using data collected subsequent to the RI to assess the current and future health risks to human and ecological receptors in the absence of any remedial actions. This abbreviated RI for OU2 builds upon the previous work conducted on the OU2 areas of the Fletcher's Paint Superfund Site in the 1990's and summarizes the additional investigations and information collected and analyzed subsequent to the RI for OU1.

1.1 Site Background

The Fletcher's Paint Superfund Site was officially listed on the National Priorities List (NPL) by the USEPA on March 31, 1989, as a result of investigations related to the 1984 closure of the Keyes Municipal Supply Well (Keyes Well). In 1984, volatile organic compounds (VOCs) were detected in the nearby Keyes Well by the New Hampshire Department of Environmental Services (NHDES - formerly known as the New Hampshire Water Supply and Pollution Control Commission). This triggered the removal of the Keyes Well from service and prompted a series of investigation and remediation activities to determine and address the contaminant sources.

The Fletcher's Paint Superfund Site is located within a mixed-use area of residential and commercial/industrial properties immediately west of the Town of Milford, New Hampshire (Figure 1-1). The Fletcher's Paint Superfund Site is situated in a densely populated residential and commercial area, located approximately one-eighth of a mile from the downtown Milford area. Approximately 11,400 people living within three miles of the Fletcher's Paint Superfund Site obtain their drinking water from public and private wells; however, groundwater associated with the study area is not currently used as a drinking water source (USEPA, 2007a).

The Fletcher's Paint Superfund Site was divided into two Operable Units to investigate apparent releases of hazardous substances to the environment. OU1 consists of the Elm Street Area, Mill Street Area, and a drainage ditch/culvert system connecting these two areas (Figure 1-1). It also includes a plume of groundwater contamination extending from the Mill Street Area through the Elm Street Area to the Souhegan River. A remedy was selected for OU1 in 1998 and amended in 2001, 2009, and 2010. The remedy for OU1 includes the excavation and off-site treatment/disposal of approximately 28,000 cubic yards of PCB contaminated soils, containment of residual contamination, and long term monitoring of the contaminated groundwater. Documents related to the OU1 cleanup, including the Remedial Design are available on the internet at www.epa.gov/ne/superfund/sites/fletcher.

OU2, which is the focus of this abbreviated RI, is comprised of the Keyes Memorial Field and Keyes Memorial Pool (Keyes Field) groundwater and the section of the Souhegan River located in the vicinity of the Elm Street Area. The Souhegan River is located north of the Elm Street Area and flows from west to east, through the

Town of Milford (Figure 1-1). It eventually discharges into the Merrimack River, which is located about 12 miles downstream of the Elm Street Area (ARCADIS, 2007).

The Souhegan River investigations have focused specifically on the area of the river just upstream of the Elm Street Area down to the Goldman Dam. The Goldman Dam, which is located approximately one-half mile downstream from the Elm Street Area, is the first impoundment downstream of the Site. Just below the Goldman Dam is the McLane Dam, which is the last impoundment located between the Souhegan River and the Merrimack River (Figure 1-1). Additional investigations in the Souhegan River between the Goldman and McLane Dams were conducted in August 2011 as part of an ongoing Dam Removal and River Restoration Feasibility Study being performed by the Town of Milford.

Keyes Field is approximately 19 acres in size and is bordered by Elm Street to the south-southwest and the Souhegan River to the north and east. Keyes Field was originally a privately-owned farm but has been publicly owned since 1957 (first by a land Trust, then by the Milford School System, and finally by the Town of Milford). The Keyes Field area is currently the location of a municipal park which is comprised of the Keyes Memorial Field complex and the Keyes Memorial Pool. Keyes Field includes baseball and softball diamonds, a soccer field, and other outdoor recreational courts, picnic, and play areas. A small structure housing the Keyes Well is located on-site on the northern end near the Souhegan River. While the Keyes Well was in operation, contamination in the groundwater resulting from the past activities at the Mill Street and Elm Street Areas was drawn north and west through the Keyes Field to the Keyes Well. Contaminants related to the Fletcher's Paint Superfund Site were found in the Keyes Well in 1984. With the removal of the Keyes Well from service in the 1980s, groundwater flow from the Mill Street and Elm Street Areas is no longer toward the Keyes Well, but generally north from the Mill Street Area towards Elm Street, then northwest towards Keyes Field, and finally north/northeast to the Souhegan River, ultimately discharging to the Souhegan River.

1.2 Site History

This section provides a summary of the history of the Fletcher's Paint Superfund Site. Additional details regarding the history and uses of the property and Fletcher's Paint operations are available in the Administrative Record. The Administrative Record is located at the USEPA Record Center in Boston, Massachusetts and at the Wadleigh Memorial Library in Milford, New Hampshire.

Fletcher's Paint manufactured, stored, and sold paints and stains primarily for residential use from 1949 to 1991. Annual production was 25,000 to 35,000 gallons of both water-based paints and solvent-based oil paints. Manufacturing occurred at the Elm Street Area, and a wood-frame building in the Mill Street Area was used for storage of bulk paint pigments.

Land use at the Elm Street Area prior to 1949 included agricultural farming in the 1800s (as part of the Crosby Farm), hide storage for the nearby tannery, a turn of the century blacksmith and carriage painting business, an armory (1913 to 1926), the town burning dump (1929 to 1947), and an automotive dealership (1920 to 1949). Fletcher's Paint Works operated from approximately 1948 until 1991. During the Fletcher's Paint operations, hundreds of drums of hazardous substances were stored outside at both the Elm Street and Mill Street Areas. Although PCBs were not extensively used in the paint operations, "scrap pyranol", which contained various mixtures of PCBs, trichlorobenzene, and trichloroethylene, was used and resold for other non-paint related purposes such as a dust suppressant, heating oil, and as a compound for the roofing cement industry. The Fletcher's Paint Works also used the scrap pyranol to suppress the dust at the Elm Street facility. These activities resulted in ubiquitous surface soil contamination, and well as contamination of sub-surface soil and groundwater from infiltration and contamination of Souhegan River sediments via runoff and groundwater discharge.

From 1960 to 1984, groundwater was the sole source of drinking water for the town of Milford. An estimated 80 percent of Milford's population relied upon the municipal supply system for drinking water, while the remainder relied on private wells. The Town's municipal supply wells were finished in the overburden aquifer. The Keyes Well is located approximately 800 feet to the northwest of the Elm Street Area of the Fletcher's Paint property. It is 18 inches in diameter, approximately 60 feet deep, and screened in gravel. Other nearby municipal supply wells operating at that time were the Kokko Well (1.0 mile to the southwest) and the two

Curtiss Wells (1.2 miles to the east). Similar to the Keyes Well, and during the same time period, the Savage Well (1.8 miles to the west) was also removed from service following discovery of contamination.

In 1984, VOCs were detected in the Keyes Well by the New Hampshire Department of Environmental Services (NHDES - formerly known as the New Hampshire Water Supply and Pollution Control Commission). This discovery triggered the removal of the Keyes Well from service and prompted a series of investigation and remediation activities to determine and address the contaminant sources. The Fletcher's Paint properties and nearby gasoline stations were determined to be the most likely sources of the contamination at the Keyes Well during the Preliminary Site Investigations conducted at the Fletcher's Paint Superfund Site and other nearby properties throughout the mid 1980's.

From May to October 1988, USEPA conducted removal activities at both the Elm Street and Mill Street Areas. At the Elm Street Area, the main activities performed by USEPA were the staging, sampling, analysis, and disposal of 863 drums of hazardous substances and the covering of contaminated soils in the parking lot with geotextile fabric and fill. The Mill Street Area soils were also temporarily covered with geotextile fabric and fill. As a result of the contamination found at the Fletcher's Paint Superfund Site and the impact to the Keyes Well, the Fletcher's Paint Superfund Site was proposed for inclusion on the NPL on June 24, 1988 and finalized on March 31, 1989.

Additional removal actions occurred at the Fletcher's Paint Superfund Site from 1991 to 1997 and included the installation of a fence at the Elm Street Area in 1991, the demolition of the Mill Street shed in 1993, and the cleanup of polychlorinated biphenyl (PCB) contaminated soils from residential properties near the Mill Street Area in 1995. In December 2000, USEPA demolished and disposed of the unoccupied, former Fletcher's Paint Works Elm Street building as part of the cleanup remedy for OU1.

Spills, leaks, manufacturing operations, and dust suppression activities led to the current contamination of the soils at the Mill Street and Elm Street Areas of the Fletcher's Paint Superfund Site. PCBs, the primary contaminant at the Fletcher's Paint Superfund Site, were brought to the Fletcher's Paint Superfund Site from approximately 1948 until 1967 from the General Electric facilities in Hudson Falls and Fort Edward, New York in a material called scrap pyranol. This scrap pyranol was a waste liquid, which could contain PCBs, trichloroethylene, and trichlorobenzene, as well as small amounts of other waste compounds. A small amount of waste PCB material also came from the Sprague Electric Company and Aerovox Company.

In April of 1996, a Remedial Investigation/Feasibility Study (RI/FS) was completed for OU1. This study and other supplemental studies have revealed that soils, sediments, surface water, and groundwater are contaminated with VOCs, semi-volatile organic compounds (SVOCs), metals, PCBs, and pesticides as a result of activities that occurred at the Fletcher's Paint properties. In addition, the RI studies showed that surface water and sediment in the Souhegan River was contaminated and certain fish and biota within the river were potentially impacted as a result of the contamination. PCB, VOC, SVOC, and heavy metal contamination from the Elm Street and Mill Street Areas has migrated to the river via former Fletcher's Paint manufacturing activities, improper storage of drums, and runoff from the Elm Street Area, as well as surface water runoff from Mill Street through the drainage ditch/culvert system (Figure 1-1). Additional details regarding the characterization of the contamination at the Fletcher's Paint Superfund Site can be found in the 1994 RI (ADL, 1994a), 1998 ROD (USEPA, 1998), 2009 ROD Amendment (USEPA, 2009a), 2009 Pre-Design Investigation Report (BBL, 2009), and the Administrative Record.

USEPA separated the Keyes Field and Souhegan River (now OU2) from the OU1 activities to allow OU1 to proceed while allowing additional investigations to continue in OU2. The separation of operable units was warranted after the 1994 RI revealed that additional studies were necessary to characterize the extent of PCB contamination within the Souhegan River and after significant petroleum product from a nearby gasoline station migrated into the Keyes Field groundwater. As a result, additional studies of the Souhegan River were conducted in 2004, 2006, and 2007 to determine the extent of PCB contamination in the sediment and biota within the Souhegan River adjacent to the Elm Street Area extending downstream to the Goldman Dam. In addition, groundwater monitoring was conducted by USEPA in 2007 and 2009 to assess the groundwater quality

in the Keyes Field area following a State mandated cleanup of the source of the nearby petroleum contamination. These latest investigations are the subject of this RI and related risk assessments for OU2.

1.3 Report Objectives

The overall objective of this abbreviated RI Report for OU2 is to present a summary of the various investigations conducted at the Fletcher's Paint Superfund Site as part of OU2 within the Keyes Field groundwater and Souhegan River, and to document the nature and extent of contamination within the OU2 study area.

For Keyes Field, historic groundwater data are summarized and a baseline Human Health Risk Assessment (HHRA) is presented in this report for human health exposures related to Keyes Field groundwater. This OU2 RI Report also summarizes the risk assessment conducted on the Souhegan River for human and ecological receptors (Battelle, 2011).

1.4 Report Organization

This document is organized in the following sections:

Section 1.0 – Introduction. This section presents the location of OU1 and OU2 features and study objectives for OU1.

Section 2.0 – Site Characteristics. This section provides a summary of the ecological setting, local hydrology, and describes the natural and cultural resources located in the vicinity of the Fletcher's Paint Superfund Site.

Section 3.0 – Summary of Keyes Field Groundwater Investigations. This section presents a summary of groundwater investigations conducted at and upgradient of Keyes Field and data collection efforts associated with the Souhegan River.

Section 4.0 – Keyes Field Groundwater Baseline Human Health Risk Assessment. This section presents the baseline HHRA for Keyes Field groundwater.

Section 5.0 – Summary of Souhegan River Investigations. This section presents a summary of data collection efforts associated with the Souhegan River.

Section 6.0 – Summary of Souhegan River Risk Assessments. This section provides a summary of the supplemental BHHRA (Battelle, 2011).

Section 7.0 – Summary and Conclusions. This section provides a summary of investigations, risk assessments, and presents the conclusions of the abbreviated RI.

Section 8.0 – References. This section presents a bibliography of references.

2.0 SITE CHARACTERISTICS

This section presents a summary of the ecological setting, local hydrology, and describes the natural and cultural resources based on the OU1 RI Report (ADL, 1994a) and BHHERA (Battelle, 2010). Additional details can be found in the referenced documents.

2.1 Ecological Setting

Upstream of the Elm Street Area, beyond Keyes Field, the Souhegan River corridor is mostly wooded and includes some high quality riverine and riparian habitat. The river varies from approximately 60 to 100 feet wide with a maximum depth of eight (8) feet. The substrate consists of mainly clean, coarse sands and gravel, with some organic sediment. The gradual grade of the river in this area results in a relatively slow flow rate. Sparse emergent and submergent vegetation is located in areas where the river bends or where log jams and sandbars create quiet pockets of water. The habitat in this portion of the river is considered moderate-to-high quality for wildlife (ADL, 1997). Trees and shrubs overhanging the river stabilize the bank and provide shade, cover, and feeding habitat for a variety of wildlife. The river provides adequate habitat for many bird species due to the diversity of habitat types, abundance of food, and lack of human disturbance. It is estimated that this river corridor supports 72 species and 63 genera of amphibians, reptiles, fish, birds, and mammals (ADL, 1997).

The reach of the Souhegan River adjacent to the Elm Street Area has physical characteristics (including width, flow rate, and substrate composition) that are similar to the upstream area; however, it is more developed and therefore has lower habitat quality for wildlife. The slope of the riverbank has been altered by anthropogenic influence in some areas, reducing the extent of shrub and herbaceous cover, and enhancing soil erosion into the river. A deeper section of the river, known as the swimming hole/rope swing area, is located directly across the river from the Elm Street Area and accessed from the river bank near the Boys and Girls Club property. The swimming hole, rope swing, and nearby sand bar is used by local youth for recreational activities. A large sandbar in the middle of the river deflects water flow toward the northern bank, resulting in relatively calm water and abundant aquatic vegetation in the backwater habitat, adjacent to the Elm Street Area. This area is also characterized by coarse and fine grain sediment accumulation and shallow water depths. The narrow width of the vegetated corridor and the higher degree of anthropogenic influence diminishes the overall habitat value of this area (ADL, 1997).

The Goldman and McLane Dams are located on the Souhegan River approximately 2,500 and 5,000 feet downstream of the Elm Street Area, respectively (Figure 1-1). The Goldman Dam was originally constructed in 1810, and the McLane Dam in 1846. Prior to the introduction of electric motors, the McLane Dam was utilized in the manufacture of furniture at the McLane Mill and the Goldman Dam played a key role with the Milford Cotton and Woolen Mill. The dams have known structural deficiencies, associated safety and liability issues, and are not currently utilized for any defined purpose nor will they be for the foreseeable future (Town of Milford, 2010). The dams are under consideration for removal by the NHDES and the United States Fish and Wildlife Service (USFWS) to alleviate flooding, improve water quality within the impoundments, and eliminate barriers for movement of migratory and resident fish. The Merrimack Village Dam, located 18 kilometers downstream, was removed in late summer 2008 by the National Oceanic and Atmospheric Administration's (NOAA) Open River's Initiative. Its removal supports efforts to provide access for migratory fish along the entire Souhegan River. A State fish hatchery is located upstream of the Elm Street Area on the Souhegan River and annually releases stocks of Atlantic salmon fingerlings and smolts. These fish pass the Elm Street Area en route to the Merrimack River and, ultimately, the Atlantic Ocean.

Studies are ongoing to assess the feasibility of the removal of the Goldman and McLane Dams including sediment sampling between the Goldman and McLane Dams. The objectives of this sampling effort are to obtain sediment samples for analysis of chemical and physical parameters. The sediment samples will be submitted for laboratory analysis to identify potential contaminants of concern. Results will be used to evaluate risks to environmental resources and human health as part of the dam removal feasibility study. Secondary objectives are to determine physical properties of the sediment for use in the sediment transport analysis (Gomez and Sullivan, 2011).

2.2 Local Hydrology

Portions of both the Keyes Field and the Elm Street Areas are located within the 100-year flood plain of the Souhegan River (Figures 2-1a and 2-1b). The flow gradient of the river is relatively low due to minor topographical changes, with mean river elevations ranging from 230 feet to 240 feet above mean sea level. The river receives groundwater and surface water runoff from the Elm Street Area from direct overland flow and through a catch basin located along Keyes Drive, which discharges through an outfall into the river (ARCADIS, 2007). A storm water drainage ditch and culvert system is present under the east side of the Elm Street Area which drains runoff from the Mill Street pond area and beyond into the Souhegan River.

During the operational period of the former Fletcher's Paint Works, in addition to the storm water drainage culvert mentioned above, several outfalls carried runoff from an underground storage tank (UST) and building roof drains to the Souhegan River. Due to flooding during heavy precipitation events (likely caused by blockages in the portions of the culvert system near the Elm Street Area), the Town of Milford installed additional storm drain piping to direct overflow to a nearby alternate discharge location (ARCADIS, 2007).

The Fletcher's Paint Superfund Site is situated along the southeastern extent of the Milford-Souhegan Aquifer system. This glacial aquifer is approximately three miles long, extends from the town of East Wilton to Milford Town Center and has an approximate width of one-half mile. As stated in the OU1 RI Report (ADL, 1994a), the saturated thickness of this aquifer is approximately 60 feet and its transmissivity ranges between 4,000 and more than 8,000 square feet per day. The Milford-Souhegan Aquifer discharges to the Souhegan River in the Fletcher's Paint Superfund Site vicinity and receives recharge from precipitation (ARCADIS, 2008b). The base of the Milford-Souhegan Aquifer is locally defined by a discontinuous veneer of clayey silt with gravel (lower glacial till) that ranges in thickness from zero to four (4) feet. At locations where the lower glacial till is discontinuous, such as the eastern half of the Elm Street Area, direct hydraulic communication exists between the bedrock and overburden aquifers (USEPA, 1998).

Groundwater at the Fletcher's Paint Superfund Site is present in both the unconfined overburden aquifer and in bedrock. The OU1 RI Report (ADL, 1994a) presented a significant amount of information describing the local hydrogeology, a summary of which is provided below.

Depth to groundwater across the Fletcher's Paint Superfund Site varies from approximately four (4) feet below grade at the Mill Street Area, 20 feet at the Elm Street Area, and 12 feet at Keyes Field. The saturated thickness also varies from approximately 10 feet beneath the Mill Street Area, 20 feet beneath the Elm Street Area to 55 feet beneath Keyes Field.

Overburden groundwater flow at the Mill Street Area generally has a northward component. The horizontal component of the hydraulic gradient between the Mill Street Area and the Elm Street Area is northward (approximately 0.01 feet per foot), and the available data indicate that the Souhegan River is the regional groundwater discharge location (ARCADIS, 2008b). The gradient is divergent at the Mill Street Area. The gradient in the western portion of the Mill Street Area is generally west to northwestward, toward the drainage ditch/culvert system that traverses in a northerly direction from the Mill Street Pond to the Souhegan River. The gradient in the eastern portion of the Mill Street Area is generally toward the north or northeast. Under current, non-pumping conditions of the Keyes Well, Keyes Field is located hydraulically upgradient of OU1 and downgradient of the Xtramart gasoline station located on Elm Street (USGS, 1996).

The vertical flow component between the overburden and bedrock varies with distance southward from the Souhegan River. Near the Souhegan River at the Elm Street Area, groundwater flows upward from the bedrock to the overburden, consistent with groundwater discharge at the Souhegan River. Near the Mill Street Area, groundwater flows downward from the overburden to the bedrock, consistent with groundwater recharge (ARCADIS, 2008b).

In-situ hydraulic conductivity data (based on rising head "slug" tests) were obtained for both overburden and bedrock units at the Fletcher's Paint Superfund Site during the OU RI. The glacial outwash sand unit exhibited hydraulic conductivity values ranging between 2.9×10^{-3} centimeters per second (cm/sec) and 9.2×10^{-3} cm/sec. Rising head test results from the upper till unit and, in some cases, the lower till unit ranges between $3.4 \times$

10^{-4} cm/sec and 2.3×10^{-3} cm/sec. However, no monitoring wells related the Fletcher's Paint Superfund Site have been installed exclusively in the thin lower till unit. Based on its density and finer-grained composition, the lower till is expected to be less permeable than the upper till. Lastly, the hydraulic conductivity for the bedrock unit, measured at two locations during the OU1 RI, was 1.13×10^{-3} cm/sec to 2.19×10^{-4} cm/sec.

During 1960 to 1984, the Keyes Well was source of municipal water for the town of Milford. The U.S. Geological Survey (USGS), in cooperation with the USEPA, conducted a study from October 1988 to June 1990 of the Milford-Souhegan aquifer to determine the regional groundwater flow system and provide estimates of the contributing recharge areas to the Keyes Well (USGS, 1996). Figure 2-2 presents the watertable surface and groundwater flow direction when the Keyes Well is not operating (non-pumping conditions) and after 720 minutes of pumping at the Keyes Well (pumping conditions) (USGS, 1996). The watertable surface at the Keyes Well and surrounding area, before pumping, reflects the influence of the river as the major sink in the groundwater flow system (inset A on Figure 2-2). The direction of groundwater flow for the lower part of the aquifer [corresponding to the screened zone of the Keyes Well (approximately 50-60 feet below ground surface)] at the Keyes Well after 720 minutes of pumping is shown in inset B on Figure 2-2. The groundwater flow direction was altered by pumping so that head gradients were increased to the southwest and reversed to the southeast of Keyes Well. A head gradient is induced across the Souhegan River from the Keyes Well, in the lower part of the aquifer, by pumping at the Keyes Well (USGS, 1996).

2.3 Natural and Cultural Resources

The Elm Street Area is bounded to the south by Elm Street, to the north by the Souhegan River, to the west by Keyes Field, and to the east by a cemetery (Figure 1-1). Keyes Field is approximately 19 acres in size and is located on Elm Street, abutting the Souhegan River. Keyes Field has one access road, Keyes Drive, which is located just west of the Elm Street Area. Facilities include a swimming pool, wading pool, a children's playground and swings, a baseball diamond, two softball diamonds, a soccer field, a skate park, open space for walks and play, a picnic area with grills, a pavilion with tables, a basketball court, and a street hockey court (Town of Milford website, 2007). A footbridge is located adjacent to the tennis courts and provides access from Keyes Field to the opposite side of the river, where the local Boys and Girls Club is situated.

The Souhegan River runs adjacent to the Elm Street Area and Keyes Field, and is a pathway that connects communities, provides year round recreation to swim, fish, paddle, walk along, and enjoy scenic views. The Souhegan River is seen as a community asset in all of the towns, including Milford, through which it flows. The Souhegan Watershed Association has been actively involved in water quality monitoring, education, and outreach and recreation events. The Souhegan River is covered by the NHDES Rivers Management and Protection Act and the NHDES Comprehensive Shoreland Protection Act. There is no doubt that the Souhegan River is viewed as both a significant community and State asset that deserves a high priority for protection by both the local communities and NHDES (Nashua Regional Planning Commission, 2006)

A site visit conducted on May 19, 1994 noted people utilizing the sandbar in the river for sunbathing and determined that the river was easily accessed from both Keyes Field and the cemetery (NH Office of Health Management, 1997). In 1997, a rope swing was installed across the river from the Fletcher's Paint Building and a visible path in the riverbed suggests a frequently used connection between Keyes Field, the sandbar, and the swing (Figure 1-1).

The Souhegan River is considered "priority" Atlantic salmon nursery habitat. Some wild populations of Atlantic salmon in New England are listed as federally endangered. However, stocked populations, such as the local Merrimack population and fish in the Souhegan River, are not. Several northeast rivers are stocked annually by the State of New Hampshire from two fish hatcheries that are located along the river, Souhegan Valley Aquaculture and the Milford State Fish Hatchery. The stocked salmon use the Souhegan River primarily as a nursery for fry, parr, and smolt as well as spawning habitat for grilse. The young salmon feed on aquatic invertebrates in the water column and associated with the benthos, and, after spending up to two years in the freshwater habitat of the Souhegan and Merrimack rivers, they migrate to the Atlantic Ocean where they mature.

A key concern of the ecological risk assessment is that these fish, in their earliest and most sensitive life stages, could be exposed to PCB-contaminated sediments and prey during their journey to the ocean. Salmon fry are

not stocked in the immediate vicinity of the Elm Street Area; however, approximately 4,000 fry may be released annually below the McLane Dam in Milford just downstream from the Goldman Dam, approximately 0.7 stream miles from the Elm Street Area. Up to another 90,000 fry may be stocked annually upstream from the Elm Street Area, with the closest upstream stocking point being near Riverway East, approximately 1.25 stream miles from the Elm Street Area. These fish will pass through the portion of the Souhegan River affected by Fletcher's Paint Superfund Site activities during their seaward. Another fish species that is stocked closer to the Elm Street Area is Atlantic shad (*Alosa sapidissima*), and up to 400 adult shad have been stocked just upstream from the Elm Street Area along the river where the baseball field is located.

The Souhegan River near the Elm Street Area is not now accessible to wild runs of anadromous fish species returning to the river to spawn because of two nearby dams (Goldman and McLane) downstream from the Elm Street Area that prevent the fish from traveling upstream. Although migratory fish may be exposed to PCB-laden sediments when they out-migrate through the site-affected area, they should not be exposed to the same conditions upon return migration to the Souhegan due to a lack of fish passage at the McLane Dam. Currently, there is no data to support that there is PCB contamination below the McLane Dam, but this should be considered an uncertainty and data gap. However, as discussed in Section 2.1, both the Goldman Dam and McLane Dam are being considered for removal by NHDES and USFWS. Removal of the dams could cause potential future exposures of contaminants to adult salmon returning to this reach of the river to spawn. A Feasibility Study is being conducted to assess the feasibility of the removal of the two dams and should be available in late 2011.

Currently, the State of New Hampshire has freshwater fishing advisories for mercury in several streams, brooks, rivers, ponds, and lakes. No advisory exists for fish consumption (other than for mercury) in the vicinity of the Fletcher's Paint Superfund Site. However, in 1997, a Health Consultation was prepared by the New Hampshire Office of Health Management under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) (New Hampshire Office of Health Management, 1997). The purpose of the Health Consultation was to evaluate the contaminant levels in fish caught in the Souhegan River near the Elm Street Area and to provide recommendations on how to minimize human health risks. Twenty fish were sampled in 1995 for various compounds, including pesticides and PCBs. All fish contained levels of the pesticide dichlorodiphenyldichloroethylene (DDE) and PCBs (represented by Aroclors). The consultation made several recommendations, including reducing exposure to contaminants in the river near the Elm Street Area by limiting the consumption of fish caught in the area and by avoiding contact with soil and sediment in the area (NH Office of Health Management, 1997). Signs posted on the fence near the riverbank and the upstream and downstream property boundaries of the Elm Street Area indicate that hazardous materials are present. However, there is no ban against fishing or swimming, and it is likely that recreational activities continue to occur due to the accessibility of the river and proximity to many town and private recreational areas.

3.0 SUMMARY OF INVESTIGATIONS

Numerous environmental investigations have been conducted at the Fletcher's Paint Superfund Site and the surrounding areas over the past 25 years. The following sections present a summary of the previous investigations and significant results for the groundwater at and upgradient of Keyes Field, and data collection efforts associated with the Souhegan River.

3.1 Summary of Keyes Field Groundwater Investigations

Groundwater investigations in the vicinity of Keyes Field were initiated as a result of the 1984 closure of the Keyes Well. The Keyes Well, located approximately 800 feet northwest of the Elm Street Area, operated from 1972 to 1984.

The approximate locations of on-site and upgradient monitoring wells associated with Keyes Field are shown on Figure 3-1. On-site wells characterize groundwater currently associated with Keyes Field (including the former Keyes Well) and upgradient wells characterize groundwater that may be associated with Keyes Field in the future should its production be resumed to meet the potential future water needs at Keyes Field or of the surrounding community.

The on-site well group is limited to monitoring wells within the Keyes Field property and those wells just across the river (KW01D, KW01S, OW2, OW2P, Keyes Well, MW-05A, MW-05BR, MW-06A, and MW-06B). MW-06C, a bedrock monitoring well co-located with MW-06A and MW-06B, is not included in the on-site well group because it is not representative of the overburden aquifer connected with the Keyes Well Field. The monitoring wells just across the river were included because the USGS pump tests determined that during pumping conditions, groundwater is drawn from this area toward the well (USGS, 1996). The upgradient monitoring well locations included those nearby monitoring wells which are just off the Keyes Field property and hydraulically upgradient, but which under future potential pumping conditions (of the Keyes Well or any newly installed well), would represent areas groundwater will likely migrate from and into the Keyes Field. As indicated in Section 2.2, under pumping conditions, it is possible that contaminated groundwater associated with OU1 would be drawn beneath Keyes Field (USGS, 1996).

Monitoring well MW-25B, which was used as a background well for OU1, is located approximately 400 feet south of the Mill Street Area (Figure 3-1) and is also used to represent background conditions for OU2.

Available well completion details and current condition of the on-site and upgradient wells are presented in Table 3-1. These wells were installed during multiple investigations conducted over a few decades.

Groundwater investigations and significant results pertaining to Keyes Field are summarized in the following sections.

3.1.1 OU1 Investigations

Groundwater investigations were conducted as part of the OU1 RI during Phases IA and IB and are presented in detail in the OU1 RI (ADL, 1994a). The primary focus of the OU1 groundwater investigations was to determine the nature and extent of contamination resulting from historic activities conducted at the Elm Street and Mill Street Areas associated with the storage of scrap pyranol, which could contain PCBs, trichloroethylene, and trichlorobenzene, as well as small amounts of other waste compounds.

The OU1 RI identified impacts to groundwater from constituents detected in soil at the Elm and Mill Street Areas. Based on the results of the RI, the ROD (USEPA, 1998), Amended ROD (USEPA, 2009a), and second Explanation of Significant Differences (ESD) (USEPA, 2010e), Interim Cleanup Levels (ICLs) were established for certain constituents in OU1 groundwater. The constituents and ICLs applicable to OU1 groundwater include: benzene (5.0 µg/L); 1,2-dichloroethane (5.0 µg/L); trichloroethene (5.0 µg/L); ethylbenzene (700 µg/L); toluene (1,000 µg/L); 1,2,4-trichlorobenzene (70 µg/L); total PCBs (0.5 µg/L); arsenic (10 µg/L); and manganese (300 µg/L).

In addition, groundwater investigations in Keyes Field were conducted as part of the OU1 RI to determine the nature and extent of contamination that may have migrated beneath Keyes Field under pumping conditions prior to the Keyes Well being shut down. Groundwater samples were collected from the on-site wells at Keyes Field and 15 small diameter wells installed as part of a field screening program to assess the source of contamination detected in the Keyes Well. Analytical parameters included VOCs, SVOCs, PCBs, pesticides, and inorganics. Significant results are summarized below.

Elevated concentrations of VOCs (primarily benzene, toluene, ethylbenzene, and xylene [BTEX]) were detected in several of the Keyes Field wells. Benzene was detected at concentrations of 1,200, 280, and 33 µg/L in wells KW01S, OW2P, and KW01D, respectively. Several VOCs were also detected in the small diameter wells installed as part of the field screening program. The highest concentrations of VOCs were detected along the southern edge of Keyes Field on the northern side of Elm Street across from the Xtramart gasoline station. The highest observed benzene concentrations were found at the water table and the maximum benzene concentration was 19,900 µg/L.

The OU1 RI concluded that the VOC contamination observed in groundwater beneath Keyes Field was assumed to have been transported from an off-site location and not associated with historic releases from the Mill Street or Elm Street Areas. At that time, the VOC contamination observed in groundwater appeared to have originated from a source near the intersection of Elm and West Streets and migrated through the groundwater in a northeasterly direction across Keyes Field toward the Souhegan River.

Further investigations within Keyes Field were discontinued under OU1 and the source of the petroleum (primarily BTEX) contamination beneath and upgradient of Keyes Field was addressed under NHDES regulations. In addition, there are documented historic releases from the Mobil and former Gulf gasoline stations located on Elm Street. These releases are also being addressed under NHDES regulations.

3.1.2 Xtramart Investigations

The Xtramart located at 78 Elm Street (Figure 1-1) has operated as a gasoline station since 1956 when the property was owned by the Atlantic Richfield Company. The Xtramart property is currently operated as an Xtramart convenience store and retail gasoline station (CEA, 2010b).

The property has been addressed under NHDES regulations (Site No. 199404027) since 1994. Numerous subsurface investigations, groundwater monitoring events, and field observations have been completed to determine the extent of contamination in soil and groundwater.

In January 1994, the NHDES received information from the USEPA stating that a groundwater sample obtained from a potable drinking water well downgradient of the Xtramart contained constituents of petroleum hydrocarbons. Between 1996 and 1998, monitoring wells XM MW-1 through XM MW-11 were installed as part of a subsurface investigation. These and subsequent monitoring wells installed during the Xtramart investigations are illustrated on Figure 3-4, but without the “XM” prefix, as that designation was not part of the original well identifier. Subsequent analyses were conducted on groundwater samples and petroleum hydrocarbons were detected at concentrations above the Ambient Groundwater Quality Standards (AGQS). Approximately one foot of light non-aqueous phase liquid (LNAPL) was measured in one of the monitoring wells with lesser amounts measured in two other monitoring wells.

A Revised Remedial Action Plan (RAP) Addendum was submitted to the NHDES in 1998 to address LNAPL. As part of the RAP Addendum, one recovery well (RW-1) was installed to conduct a pumping test. Based upon the pumping test, LNAPL volume did not increase as the groundwater table decreased. Therefore, periodic bailing was proposed and approved by the NHDES.

On September 17, 1999, Groundwater Management Permit (GMP) No. 199404027-M-001 was issued for the property. Monitoring well XM MW-12 was installed on July 31, 2001 and LNAPL was observed in early July 2002.

On November 1, 2001, a Revised RAP Addendum was completed for a more aggressive approach to address LNAPL. In-situ bioremediation was recommended, but not approved by the NHDES. NHDES suggested evaluating dual-phase product recovery.

On February 13, 2002, the NHDES revised the GMP and required tri-annual groundwater sampling of 10 monitoring wells. The GMP also required LNAPL gauging and recovery from multiple monitoring wells until product recovery pilot testing was completed.

On June 11, 2002, a Work Scope/Cost Estimate - LNAPL Pilot Study was submitted. On July 19, 2002, one recovery well and one soil vapor extraction (SVE) well were installed for the pilot test. However, due to the decrease in the LNAPL thickness, the dual-phase pilot test was postponed.

As part of the 2002 Annual Summary Report, the installation of up to two additional monitoring wells to delineate the contamination plume was proposed. On June 18, 2003, monitoring well XM MW-13 was installed downgradient of the Xtramart at Keyes Field to complete a Groundwater Management Zone (GMZ) delineation for the Xtramart release.

On March 7, 2005, a Remediation System Evaluation was completed that proposed the installation of a SVE well and an air sparge (AS) well and completion of a pilot test at the Xtramart property. The SVE/AS pilot test was conducted in 2006 and based on the outcome the SVE/AS system was installed. On May 10, 2007, operation of the remedial system was initiated.

The remedial system was operated on the Xtramart property nearly full time from May 10, 2007 until June 16, 2009 when at the request of the NHDES the treatment system was cycled off and on at one (1) month intervals until August 2009. In August 2009, at the request of the NHDES, the treatment system was put on a new operating schedule of three (3) months off and one (1) month on. This schedule continued until the summer of 2010 when the remedial system was expanded (CEA, 2010b).

In September 2010, the remedial system was extended to cover the northern side of Elm Street. A total of four (4) new 2-inch SVE wells (SVE-8 through SVE-11), two (2) new 1-inch AS wells (AS-8 and AS-9), and one (1) new 2-inch monitoring well (XM MW-14) were installed in the town right-of-way in front of 83 and 77 Elm Street. The site plan of the Xtramart property is presented in Figure 3-2. On September 20, 2010, the expanded system was activated.

On March 18, 2010, the NHDES issued Groundwater Management Permit (GMP) No. 199404027-M-003. The GMP for the Xtramart site requires that several monitoring wells be gauged and sampled in April and October each year (CEA, 2010b). Figure 3-3a presents the GMZ associated with the Xtramart site (CEA, 2010a). Figure 3-3b presents the GMZs near the Keyes Well associated with other nearby sites (ARCADIS, 2008a).

On October 19, 2010, LNAPL was measured in soil vapor extraction points SVE-8, SVE-10 and SVE-11 and monitoring wells XM MW-6 and XM MW-14 at thicknesses ranging from 0.07 feet in soil vapor extraction point SVE-10 to 1.26 feet in soil vapor extraction point SVE-8. CEA completed manual LNAPL recovery with a bailer and scheduled two (2) enhanced fluid recovery (EFR) events to recover the LNAPL from the soil vapor extraction points and monitoring wells. The first EFR event was completed on November 5, 2010 and 113 gallons of gasoline and groundwater were recovered. Groundwater monitoring of the Xtramart well network was routinely conducted starting in 1996. Water table contours for the October 2010 monitoring event are presented in Figure 3-4. Groundwater flows north from the Xtramart property to Keyes Field and then northeast across Keyes Field toward the Souhegan River.

Available analytical results since 2007 for the Xtramart wells that are included in the upgradient data set associated with Keyes Field are presented in Appendix B. Figure 3-5 presents the total BTEX concentration contours and identifies the estimated extent of LNAPL based on the October 2010 monitoring event. Analytical results from XM MW-10, which is centrally located on the southern edge of Keyes Field and upgradient of the Keyes Well, indicate that VOCs [benzene, and methyl tert-butyl ether (MTBE)] concentrations have declined significantly since 1996 (CEA, 2009). The historic maximum observed concentrations of benzene and MTBE in XM MW-10 were 940.5 µg/L and 580 µg/L, respectively. Benzene had not been detected in XM MW-10 since April 2008 until October 2010 (3.3 µg/L) and MTBE has not been detected since November 2003.

3.1.3 Supplemental Groundwater Monitoring at Keyes Field

Subsequent to the completion of the OU1 RI in 1994, supplemental groundwater monitoring has been conducted at Keyes Field by the GE and USEPA.

A major component of the selected remedy for the OU1 groundwater required that a Groundwater Management Zone (GMZ) be established under the New Hampshire Comprehensive Groundwater Policy (USEPA, 2010e). The GMZ sets boundaries within which groundwater will be monitored over time to ensure that the contaminant concentrations are decreasing; to ensure that the remaining contamination has not migrated beyond the established boundaries or impacted the Souhegan River; and that the remedial action cleanup is working and remaining effective over time. The OU1 GMZ is presented in Figure 3-6.

In accordance with the 2001 USEPA Unilateral Administrative Order, as amended in 2010, quarterly groundwater monitoring has been conducted since 2007 by GE at more than 40 monitoring wells including the following wells associated with Keyes Field (ARCADIS, 2011).

- On-Site Wells: MW-05A, MW-05BR, MW-06A, MW-06B
- Upgradient Wells: MW-18B

Quarterly groundwater monitoring activities are documented in Water Monitoring Reports submitted approximately 90 days following the completion of each quarterly monitoring event. Figure 3-7 presents the water table contours based on the January 2011 quarterly monitoring event. Consistent with prior USGS studies (USGS, 1996), groundwater from the Mill Street and Elm Street Areas discharges to the Souhegan River prior to reaching the Keyes Well under current non-pumping conditions of the Keyes Well. The concentration of each ICL constituent detected at each monitoring well during the January 2011 sampling event is presented on Figure 3-8 (ARCADIS, 2011), with the exception of arsenic, which was not analyzed during that sampling event.

Since sampling began in 2007, VOCs have not been detected in the Keyes Field on-site wells monitored by GE. Available analytical results for the Keyes Field on-site well data set are presented in Appendix B. In addition, USEPA conducted supplemental groundwater monitoring events of Keyes Field wells in 2007 and 2009. Analytical results from these sampling events are presented in Appendix B. In April 2007, the following wells were sampled:

- On-Site Wells: OW2, OW2P, KW01D, KW01S, Keyes Well, MW-05A, MW-06A, MW-06B
- Upgradient Wells: KW03D

Significant results from this sampling event included the detection of MTBE at a concentration of 49 µg/L in KW01D (50 µg/L in the duplicate sample). Benzene was not detected in any of the on-site wells.

The October 2009 groundwater monitoring event conducted by USEPA included sampling of the on-site well Keyes Well and upgradient well KW03D. VOCs associated with Fletcher's Paint Superfund Site activities were not detected in either of these wells. Well KW01D, which had MTBE detected at 49 µg/L in 2007, was not sampled due to obstructions in the well.

4.0 KEYES FIELD GROUNDWATER BASELINE HUMAN HEALTH RISK ASSESSMENT

This section presents the approach for and results of a Baseline HHRA performed for the groundwater at Keyes Field for OU2 of the Fletcher's Paint Works and Storage Facility. The HHRA was prepared in accordance with the *Risk Assessment Guidance for Superfund (RAGS) Volume I*, including:

- Part A – Human Health Evaluation Manual (USEPA, 1989);
- Part B – Development of Risk-Based Preliminary Remediation Goals (USEPA, 1991a);
- Part D – Standardized Planning, Reporting and Review of Superfund Risk Assessments (USEPA, 2001);
- Part E – Supplemental Guidance for Dermal Risk Assessment (USEPA, 2004); and
- Part F – Supplemental Guidance for Inhalation Risk Assessment (USEPA, 2009b).

In addition, the HHRA applied risk assessment protocols, exposure parameters, and toxicity factors that were selected to be consistent with recent USEPA Regional guidance and preferences. The HHRA was structured to reflect the consensus instruction of the USACE and USEPA site managers and the application of good professional judgment.

The focus of this HHRA was to assess the potential for risk due to exposure of people to the groundwater currently associated with the Keyes Field (including the former Keyes Well) and to groundwater that may be associated with the Keyes Field in the future should the Keyes Well production be resumed to meet the potential future water needs of the surrounding community. Accordingly, a quantitative risk assessment was performed relative to the current groundwater quality and potential uses, and a conservative screening level risk assessment was performed relative to potential future groundwater uses.

4.1 Overview of Risk Assessment Process

The quantitative portion of the HHRA relative to the current groundwater quality and potential uses was conducted using a four-step process: data evaluation, exposure assessment, toxicity assessment, and risk characterization. These steps are performed with consideration to the conceptual site model (CSM) developed to describe the potential current and future exposure pathways relative to groundwater at the Site. The CSM reflects the current and projected future continued use of Keyes Field as a municipal park and focuses on the potential exposures of the Park Workers and users. In addition, the CSM reflects the possibility that the local groundwater could one day again be extracted and used to supply a public water system and become the source of drinking water and water for domestic uses at private homes.

The steps and the process involved with each step are discussed below.

1. Data Evaluation. The data identifying the chemicals most recently detected in groundwater were compiled, evaluated, and summarized. The data characterizing the groundwater associated with the on-site wells was evaluated separately from the data characterizing the groundwater associated with the wells upgradient of Keyes Field. The on-site groundwater data were then screened to identify a subset of the detected constituents as being potentially significant contributors to risk (i.e., the COPCs) to be further considered in the quantitative risk assessment. The maximum detected concentration of each constituent detected in the groundwater from the upgradient wells was used in the conservative screening level risk assessment.
2. Exposure Assessment. The ways in which people may be exposed to the identified COPCs in the on-site groundwater were then evaluated and quantitatively described for the exposure pathways indicated in the CSM to be complete or potentially complete now or in the future. The receptors potentially associated with the potentially complete groundwater exposure pathways are a future Park Worker, a future Park User, and a hypothetical future Resident using the local groundwater. The future Park Worker could be exposed to the groundwater while performing typical park maintenance duties (such as irrigating the sports fields, hosing down the swimming pool area, and cleaning the picnic areas) or by drinking from an on-site groundwater-supplied water fountain. A future Park User could be exposed to the groundwater primarily through immersion in or contact with groundwater used to fill the swimming or wading pools,

showering after swimming, or drinking water from an on-site groundwater-supplied water fountain. A future residential exposure scenario (not necessarily located in the park) would involve potential exposures to the local groundwater to both adult and child residents from drinking and all domestic uses (See Section 4.2.2 for more detail). For each pathway selected for quantitative evaluation, the concentrations of the COPCs at the point of potential human exposure were estimated based on a statistical analysis of the sampling results and/or inter-media transport modeling. The exposure point concentrations (EPCs) for each COPC in the on-site groundwater and/or hypothetical future residential indoor air (as appropriate) were conservatively estimated. The magnitude, frequency, and duration of exposure were then estimated for each receptor and exposure pathway associated with the potential current and future users of the on-site groundwater for a reasonable maximum exposure (RME) scenario. These EPCs and exposure parameters were used to calculate ingestion and dermal absorption doses or intakes and airborne exposure concentrations of the COPCs as appropriate for each receptor being evaluated. The screening level risk assessment assumed a conservative residential drinking water exposure scenario.

3. **Toxicity Assessment.** The chemical-specific health effects criteria describing the known dose/response characteristics for the COPCs that were carried through the quantitative risk assessment for the on-site groundwater were then applied to the dose and airborne exposure estimates. The current dose/response criteria associated with both non-carcinogenic and carcinogenic health effects endpoints applicable to the ingestion, dermal absorption, and inhalation exposure routes were compiled for the COPCs. The sources of toxicological information and criteria followed the preferred USEPA hierarchy of peer reviewed sources. Toxicity factors used in this HHRA included oral and dermal reference doses (RfDs) and inhalation-related reference concentrations (RfCs) for the non-carcinogenic COPCs, and oral and dermal cancer slope factors (CSFs) and inhalation-related unit risks (URs) for the carcinogenic COPCs.
4. **Risk Characterization.** Quantitative risk estimates were developed for each receptor and each exposure pathway selected for quantitative evaluation by combining the projected contaminant doses or intakes for the potentially exposed receptors with the appropriate toxicity criteria. The overall risk to each receptor was then calculated by summing the risks for each COPC contributing to a pathway, and for all identified pathways likely to contribute to the risk to that receptor as identified in the CSM. The risk results were summarized to support the site management process. An evaluation of the major sources of uncertainty in the risk assessment that may have contributed to an over- or underestimation of the true risk also was performed.

4.1.1 Organization of Section

The HHRA presented in this section is organized as follows:

- Section 4.1 – An introduction and overview of this risk assessment (including the organization of the rest of Section 4).
- Section 4.2 – A brief description of Keyes Field and the CSM that was developed to identify and consider potential current and future exposures to groundwater (including an identification of the receptors and exposure routes of interest relative to the groundwater now and in the future).
- Section 4.3 – A description of the process used to compile and evaluate the on-site and upgradient groundwater data, screen the on-site data to identify COPCs to be quantitatively evaluated in the risk assessment, and estimate EPCs for constituents in the on-site groundwater.
- Section 4.4 – An identification of the exposure parameters selected to represent the receptors highlighted by the CSM as having potentially complete exposure pathways relative to the on-site groundwater now or in the future.
- Section 4.5 – The identification of the dose/response toxicity values that were used in the risk assessment relative to non-cancer and cancer health effect endpoints.

- Section 4.6 – A description of the relationships used to estimate contaminant intakes, doses and exposure conditions for each exposure route and the protocols for using these quantities to develop the cancer and non-cancer risk estimates for each receptor of interest.
- Section 4.7 – The results of the quantitative risk assessment for the on-site groundwater for each receptor of interest.
- Section 4.8 – The results of the screening level risk assessment for the upgradient groundwater relative to a conservative residential water use scenario.
- Section 4.9 – A discussion of the most significant uncertainties associated with the performance and findings of this risk assessment.
- Section 4.10 – The conclusions of the risk assessment.

4.2 Site Description and Conceptual Site Model of Groundwater Exposures

Exposure pathways were selected for quantitative consideration in the HHRA to reflect the current and potential future groundwater uses at Keyes Field based on a review of the characteristics of Keyes Field and groundwater data and observations made during site visits by project team personnel.

4.2.1 Description of Keyes Field

The town of Milford is located in Hillsborough County, New Hampshire, in the southwestern portion of the State. Keyes Field is approximately 19 acres in size and is bordered by Elm Street to the south-southwest and the Souhegan River to the north and east. The property was originally a privately-owned farm but has been publicly owned since 1957 (first by a land Trust, then by the Milford School System, and finally by the Town of Milford). Keyes Field includes baseball and softball diamonds, a soccer field, and other outdoor recreational courts, picnic, and play areas. The fields are accessible year-round, but are primarily used in the warmer months for various organized and ad hoc sports activities. The swimming and wading pool and the associated pool house are open seven days a weeks but only during the warmest weeks of the summer. In 2010, the pool facilities were open from June 21st to August 28th. The pool house is open and well-ventilated and is only occupied for relatively short periods of time by Park Users and the pool staff.

On April 5, 2010, a site visit was conducted by Evan Barman of Watermark and Ron Marnicio of Tetra Tech to obtain supplemental site-specific information needed to construct the CSM and perform the HHRA. Information collected during the site visit was used in the selection and description of the exposure pathways discussed in the next subsection and in the determination of the site-specific exposure parameters. Photographs taken during the site visit are presented in Appendix A.

4.2.2 Conceptual Site Model of Potential Exposure to Groundwater

A human health exposure pathway describes a chemical's route of transport from its source to the exposed individual. A complete exposure pathway must include all of the following elements (USEPA, 1989):

- A source and mechanism of chemical release to the environment (e.g., a spill or leak);
- An environmental transport medium (e.g., groundwater) for the released chemical and/or mechanism of transfer of the chemical from one medium to another;
- A point of potential contact by humans with the contaminated medium (e.g., at the tap or point of recreational use); and
- A route of exposure (i.e., inhalation, ingestion, and/or dermal absorption).

A complete exposure pathway does not imply that exposures are actually occurring, only that the potential exists for that pathway to result in exposures to that receptor. This subsection discusses the exposure pathways that were evaluated for inclusion in the HHRA for the potential receptor populations identified for the Site. The evaluation and selection process is summarized in tabular form in the CSM (Table 4-1) and is discussed further below.

Keyes Field is currently used as an outdoor recreational area and contains a swimming pool. However, at present, all of the water used at the Keyes Field (i.e., water used for drinking, showering, sanitation, irrigation, and filling the pool) is municipal water obtained from other sources. Therefore, the current Park Users and staff are not currently exposed to the on-site groundwater at this time and there is no risk. However, it is possible in the future that the Town of Milford could consider re-activating the existing Keyes Well (which was formerly a municipal supply well) to obtain groundwater for use as a source of tap water for the park facilities or nearby homes. Under this hypothetical scenario, the receptors associated with the potential future groundwater use at Keyes Field are a future Park Worker, an adolescent future Park User, and a hypothetical Resident (an adult and/or a child). The Park Worker could be exposed to the groundwater while performing typical park maintenance duties such as irrigating the sports fields, hosing down the swimming pool area, and cleaning the picnic areas. In addition, this receptor could drink from an on-site groundwater-supplied water fountain. A future Park User could be exposed to the groundwater primarily through immersion in or contact with groundwater used to fill the swimming or wading pools, showering after swimming, and drinking water from an on-site groundwater-supplied water fountain. A future residential exposure scenario (that considered potential groundwater exposures to both adult and child residents from drinking and all domestic uses at a residence not necessarily located at the park) was evaluated relative to potential future unrestricted use to provide a baseline for purposes of comparison. This scenario would apply if the Keyes Well were to be re-activated and the extracted groundwater used as a source into the municipal supply system.

This hypothetical future tapwater exposure would result from ingestion, dermal absorption, or the inhalation of volatiles released from the water. Only three (3) VOCs or SVOCs were detected in the groundwater during the sampling period (see below) and they were detected only sporadically (with a frequency of detection between 10% and 20%). Only two (2) of these compounds (acetone and MTBE) had screening values from the Draft 2002 Vapor Intrusion Guidance (USEPA, 2002a) and their maximum detected concentrations were at least three (3) orders of magnitude below their respective screening values. Accordingly, the potential for volatile contaminants in groundwater to migrate upwards through the overlying soil and into the indoor air of a future on-site structure or the existing pool house is very low. Therefore, the vapor intrusion pathway is considered to be incomplete and was not further assessed in this HHRA.

4.3 Groundwater Data Evaluation

This subsection describes the compilation and evaluation of the databases assembled for the HHRA of the on-site and upgradient groundwater associated with Keyes Field. These data were used to identify those COPCs that were retained for evaluation in the HHRA and later to estimate EPCs for the identified receptors. The most recent groundwater data from sampling performed from April 2007 through January 2010 (i.e., through October 2009 for the on-site sampling and through January 2010 for the upgradient sampling) were considered for use in the HHRA. The process used to compile this data is described in Section 4.3.1, while Section 4.3.2 discusses the process used to analyze the groundwater data and produce the water quality metrics needed to support the HHRA.

4.3.1 Data Review and Compilation

Analytical results from groundwater sampling events conducted during the time periods defined above were used to create the data sets used in this risk assessment. All wells within OU2, with the exception of wells drilled into the bedrock, were considered for inclusion. Bedrock wells were not included in the HHRA for OU2 as groundwater from the bedrock would not be as feasible or attractive as the much more productive overburden formation for a municipal water supply. Groundwater data was compiled from sampling and monitoring reports prepared by GE, CEA, and USEPA. Different well screen depth identifiers were assigned to the components of the well clusters by the different sampling organizations. For example, wells with an “S” and “D” suffix refer to the shallow and deep wells of an overburden well cluster, respectively, as do wells with an “A” and “B” suffix, respectively. Given the focus of this HHRA, separate groundwater data sets were needed relative to the wells within OU2 (referred to as the “on-site” wells) and the wells hydraulically upgradient of the on-site wells (referred to as the “upgradient” wells). Figure 3-1 shows the approximate locations of the on-site wells, the upgradient wells, and the background well.

Two observations were apparent relative to the data collected by these different organizations during this time frame. First, not all of the wells in either the on-site or the upgradient well groupings were sampled at every sampling event. For example:

- Some wells (e.g., KW02) had been previously vandalized and were damaged such that no data was generated during the indicated four year timeframe;
- Other wells (e.g., KW01D, KW01S) became damaged and unusable after the initial April 2007 sampling event such that no additional data was generated after that date;
- Still other wells (e.g., OW2, OW2P, KW03D) have not been damaged but were not re-sampled after the initial April 2007 sampling event; and
- The remaining wells (e.g., MW-06A, MW-06B, XM MW-10, XM MW-11, XM MW-13) were sampled at different frequencies and on different cycles during the specified years.

The second observation was that the laboratory analyses performed on the samples collected by these organizations were not consistent due to there being different objectives and different sampling drivers for the different projects. Some monitoring wells were sampled and analyzed for VOCs (noting that the lists of VOCs reported by the laboratory often differed between sampling organizations), base/neutral/acid (BNA) extractable compounds or SVOCs, mercury, cyanide, metals, and PCBs, while samples from other wells and/or collected at other times were analyzed only for VOCs, manganese, and PCBs. This reality resulted in data sets with uneven numbers of analyses for different families of analytes. A summary of the available data for each well grouping (including the background well (MW-25B)) is presented in Table 4-2.1.

All available validated data (USEPA, 1992) from the wells listed in Table 4-2.1 for the timeframe April 2007 to January 2010 were ultimately selected for use in the HHRA based on discussions with the USEPA and USACE.

The results for a total of seventy-one (71) original and five (5) duplicate groundwater samples were compiled. Twenty-three (23) original and three (3) duplicate groundwater samples were collected in 2007, twenty-six (26) original and one duplicate groundwater sample were collected in 2008, seventeen (17) original and two duplicate groundwater samples were collected in 2009, and one additional original groundwater sample was collected in 2010. As noted above, these groundwater samples were analyzed for varying combinations of VOCs, BNAs, SVOCs, volatile petroleum hydrocarbons (VPH), total petroleum hydrocarbons (TPH), PCBs, cyanide, mercury and metals.

On-site, upgradient, and background groundwater data sets were then created and analyzed separately in consideration of the separate potentials for exposure to the current and future groundwater characteristics. The wells compiled for each well grouping were (see Table 4-2.1):

On-Site Wells: OW2, OW2P, KW01D, KW01S, Keyes Well, MW-05A, MW-05BR, MW-06A, MW-06B

Upgradient Wells: MW-18B, Xtramart (XM) MW-10, XM MW-11, XM MW-13, KW03D

Background Well: MW-25B (the same background well used for OU1)

The analytical results for the groundwater samples for each of these well groupings were compiled and critically reviewed and is summarized as follows:

- The on-site groundwater data set consisted of the results for thirty-three (33) original and four duplicate samples;
- The upgradient groundwater data set consisted of the results for thirty-one (31) original and one duplicate samples; and
- The background groundwater data set consisted of the results for seven (7) original samples and no duplicate samples collected at MW-25B.

A summary of these three data sets are presented in Appendix B in Tables B-1, B-2 and B-3, respectively. The complete data sets are presented in Appendix E.

Upon review, it was seen that there were no detections of cyanide, mercury or VPH in any sample from either the on-site or the upgradient well data sets. As such, these analytes are not further addressed in the subsequent data analyses of risk assessments. However, sample results for the PCBs are presented in the on-site and upgradient data sets for informational purposes. There were seven detections of TPH at low concentrations in the upgradient data set. These detections were not included in the data set because the detections were at low levels near the sample detection limits which are not likely to be a significant risk concern and there are no commonly acknowledged and accepted toxicity factors and/or screening values for these compounds. As such, these detections are noted, but are not carried forward into the risk assessment.

4.3.2 Data Reduction and Analysis

The compiled data set for each well grouping was pre-processed to facilitate COPC identification as follows:

- Data for chemicals that were detected in a sample at an estimated concentration (i.e., “J” qualified) were retained as-is for the risk assessment.
- Duplicate samples were pre-processed in the following manner:
 - If the original sample and the duplicate sample both had concentrations of an analyte above the detection limit (DL), the two detected concentrations were averaged, and the average concentration was used to represent that sample for the subsequent analyses.
 - If an original/duplicate sample pair yielded one detection and one non-detect result for the analyte, the detected concentration was used to represent that sample for the risk assessment.
 - If both the original and duplicate sample were non-detect, then the lower of the two DLs for the original/duplicate sample pair was used as the concentration representing that constituent in that sample.

A statistical summary of the on-site data set is presented in Table 4-2.2. The following information is included in Table 4-2.2: scenario/timeframe, medium, exposure medium, exposure point, Chemical Abstract Service (CAS) number, chemical, minimum and maximum detected concentrations, data qualifiers, units, location of maximum concentration, detection frequency and the range of detection limits. Note that if the reported maximum concentration was detected in an original/duplicate sample pair, the actual maximum concentration is presented instead of the average of the original and duplicate result.

4.3.3 Identification of Chemicals of Potential Concern

COPCs were identified by applying appropriate exposure pathway-related screening criteria to the groundwater sampling results for each of the detected chemicals in the on-site data set. The screening criteria that were applied are described below.

Comparison to Risk-Based Screening Criteria – The maximum concentration of each detected chemical in the on-site groundwater data set was compared to a risk-based chemical-specific screening value for groundwater. A chemical whose maximum detected concentration was less than its screening value was eliminated from the list of COPCs and not further evaluated. Screening values reflecting residential exposure via ingestion, dermal absorption and air inhalation exposures from the USEPA Regional Screening Level (RSL) Table (i.e., the RSLs for tapwater) (USEPA, 2010d). These screening criteria correspond to a 1×10^{-6} risk for carcinogenic effects or a non-carcinogenic Hazard Index (HI) of 0.1. One-tenth (1/10) of the published RSL value (which is based on an HI of 1.0) was used as the screening value for the non-carcinogenic compounds to protect against underestimation of non-cancer hazards from exposure to multiple non-carcinogens potentially impacting the same target organ system.

Essential Nutrients– Naturally occurring elements considered to be essential for human nutrition (i.e., calcium, magnesium, potassium, and sodium) were eliminated from the COPC list in accordance with RAGS Part A Guidance (USEPA, 1989).

Background Concentrations– Comparison to background levels of a chemical in groundwater was not used as a COPC screening criteria. However, the analytical results from monitoring well MW-25B were identified as reflective of background because this well is located off-site and upgradient of Keyes Field and is not indicated to have been impacted by any contamination sources associated with OU1 or OU2 or any other upgradient release.

Potential Applicable or Relevant and Appropriate Requirement/To Be Considered (ARAR/TBC) Values – As was the case for the background concentrations, a comparison to some preliminarily identified ARAR/TBC concentrations was not used to screen out a COPC for this HHRA. However, these regulatory levels for groundwater were included in Table 4-2.2 for comparison purposes and to provide some additional context. For this HHRA, the Maximum Contaminant Levels (MCL), Action Levels, and the NHDES Part Env-Drinking Water MCLs (NHDES, 2010) were identified as ARARs and are presented in Table 4-2.2.

The COPC screening and selection processes for the on-site groundwater are summarized in Table 4-2.2, where the following information is presented: the groundwater concentration that was used for screening (i.e., the maximum detected concentration from the on-site data set); the range of background concentrations (when available); the screening toxicity value (i.e., the USEPA RSLs for tapwater); the potential ARAR/TBC value; whether or not that chemical was selected as a COPC for the HHRA (i.e., the COPC flag); and the rationale for the chemical's deletion or selection as a COPC. Nineteen (19) compounds were detected in the on-site groundwater samples and five chemicals (one VOC and four metals) were chosen as COPCs, as shown in Table 4-2.2. Further comment on the detections of MTBE and the SVOC bis(2-ethylhexyl)phthalate (BEHP) follows:

- MTBE was detected in one original sample during the April 2007 sampling event at a concentration of 49 µg/L. There were no other detections of MTBE in any other sample from any other subsequent sampling event. MTBE has been most commonly used as an octane enhancing additive to unleaded gasoline since the late 1980s. It is also sometimes used as a laboratory reagent to extract SVOCs for analysis. This compound is not associated with the former operations at the Fletcher's Paint Facility. The detections of MTBE in the on-site groundwater are most likely the result of a known past gasoline releases from one of the gasoline stations located upgradient across Elm Street. However, because of the carcinogenicity of MTBE, it was conservatively retained as a COPC to ensure that the carcinogenic human health risks are not underestimated.
- BEHP was detected in one original sample collected during the April 2007 sampling event at a concentration of 230 µg/L. There were no other detections of this compound during the remainder of the four year sampling timeframe. The primary industrial use of BEHP is as an additive to plastics to increase their flexibility. As such, BEHP is a common laboratory contaminant due to the ubiquitous use of plastics in laboratories. The single detected concentration of BEHP was determined to have been at a concentration less than 10 times the BEHP concentration detected in the laboratory blank associated with the sample. Accordingly, BEHP was judged to have been present in the sample as the result of accidental laboratory contamination and was not retained as a COPC.

4.3.4 Exposure Point Concentrations

In order to quantify the magnitude of exposure that may occur to an identified receptor (and the resulting intake or dose of the COPC), the concentration of the constituent at the point of potential contact or exposure must be estimated. The EPC is the estimated concentration of the COPC to which a receptor would be exposed if groundwater were to be utilized for general use water at the park or as municipal tapwater for the Town in the future. The EPCs are used in conjunction with the receptor-specific exposure factors to calculate chronic daily intakes (CDIs), dermally absorbed doses (DADs) to the receptors, or the projected airborne exposure levels of the COPCs experienced by the receptors. This HHRA was designed to evaluate the risks to the identified receptors associated with a RME exposure scenario, which is defined as the "highest exposure that is reasonably expected to occur at the site".

The EPCs that were calculated for the identified COPCs are presented in Table 4-3.1. These EPCs are estimates of the 95% upper confidence limit (UCL) on the mean of the on-site well data distribution using the USEPA ProUCL Version 4.1.01 statistical software package that is available through the USEPA website (USEPA, 2011).

Due to the non-detect capabilities of the software, ProUCL was used to generate UCL values for the COPCs for each exposure point location regardless of the number samples that were associated with that COPC as long as a small number of detections (i.e., greater than 3-4) were present. The 95% UCL on the arithmetic mean was calculated for each COPC using an algorithm selected in response to the statistical distribution of each data set. The ProUCL calculations were performed by allowing the software to explicitly account for all non-detect analytical results [and not substituting $\frac{1}{2}$ the sample DL for the non-detect results (see the uncertainty section for further discussion of this issue)]. The ProUCL outputs for the EPC calculations for the on-site groundwater data set are included as Appendix C. If the COPC did not have enough detections for the ProUCL software to reliably calculate a 95% UCL, the maximum detected concentration was used as the EPC and an average concentration was calculated using $\frac{1}{2}$ the sample quantitation limit for the analyte as the concentration for the non-detect samples.

4.4 Exposure Assessment

Exposure parameters were established to define each of the potential receptor populations associated with the complete and potentially complete pathways identified in the CSM (Table 4-1). The exposure parameters used to develop the quantitative risk estimates are summarized in Table 4-4.1 and are discussed by receptor below. The exposure parameters applied for this HHRA were drawn from RAGS Part A (USEPA, 1989), RAGS Part E (USEPA, 2004), USEPA's Standard Default Exposure Factors (USEPA, 1991b), the Exposure Factors Handbook (USEPA, 1997), the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002b), the USEPA RSL User's Guide (USEPA, 2010b), and conservative site-specific assumptions. Bioavailability of all constituents was conservatively assumed to be 100 percent.

4.4.1 Receptor Parameters

The exposure parameters and assumptions selected for use in the quantitative risk assessment for a future adult Park Worker, a future adolescent Park User, and a hypothetical adult and child Resident exposed to the on-site groundwater in a domestic setting are presented in Table 4-4.1 and are discussed in the subsections below.

4.4.1.1 Future Park Worker

This person would perform outdoor landscaping and maintenance activities (such as irrigating and mowing the fields, cleaning/hosing down the pool facilities and park maintenance equipment, and picking up trash) throughout the park. The future Park Worker is assumed to be an adult who would work outdoors on a seasonally variable work schedule of 5 days/week in summer (13 weeks), 3 days/week in the spring and fall (26 weeks), and not work in the winter (13 weeks), for a total of 143 days/year. A value of 4,447 square centimeters (cm²) was estimated for the exposed skin surface area for dermal exposure, which corresponds to an adult wearing a short sleeved shirt and shorts (i.e., exposed hands, forearms, and lower legs) (USEPA, 2004). The averaging time for carcinogenic effects was 70 years (i.e., assumed lifetime) and for non-carcinogenic health effects it was the exposure duration (USEPA, 1989). The future Park Worker is assumed to be potentially exposed to the groundwater through ingestion and dermal absorption of the groundwater.

4.4.1.2 Future Park User

It is assumed that the future Park User would utilize the sports fields and playground facilities during the warmer months of the year (i.e., 34 weeks during April through September), and would use both the fields and pool facilities during the weeks that the pool is open and available to the public. These assumptions result in different exposure frequencies (EFs) for ingestion and dermal absorption for this receptor. The ingestion EF of 54 days/year reflects the future Park User being at the park and drinking from a future groundwater-supplied water faucet or drinking fountain three times/week during the 10 weeks that the pool is open and one time/week for the remaining 24 weeks. The dermal absorption EF of 30 days/year reflects a future Park User swimming three times/week for the 10 weeks that the pool is typically open. Exposure parameters for the future Park User are presented in Table 4-4.1.

Additional RME exposure assumptions for the future Park User include: being between six and 14 years of age (referred to as a young adolescent) weighing 35 kilograms (kg); having an exposed skin surface area for dermal exposure of 11,414 cm²; and an averaging time for carcinogenic effects of 70 years and for non-carcinogenic

effects an averaging time equal to the exposure duration (USEPA, 1989). Similar to the future Park Worker, the future Park User is assumed to be potentially exposed to groundwater by ingestion and dermal absorption of the groundwater.

4.4.1.3 Residents Using Groundwater-Supplied Tapwater

Hypothetical future residents who may be exposed to the on-site groundwater via domestic use (if the Keyes Well were to be re-activated) would include both adults and young children. Exposure parameters for the Residents are presented in Table 4-4.1. Adults are persons greater than 18 years of age and weigh 70 kg (USEPA, 1991b). The young child Resident was assumed to be zero (0) to six (6) years old and weigh 15 kg (USEPA, 2002b). Residents were assumed to be potentially exposed to groundwater by ingestion and dermal absorption of the groundwater as tapwater supplied through a municipal system, and via the inhalation of volatiles released into the indoor air of the residence during showering or bathing, cooking, or washing with the tapwater.

Groundwater ingestion rates of two liters (L)/day and one L/day and exposed skin surface areas of 18,000 cm² and 6,600 cm² were assumed for the adult and child Resident, respectively (USEPA, 2010b, 2004). An exposure frequency of 350 days per year was assumed for both the adult and child Resident (USEPA, 1991b and 2002). The assumed exposure durations were 30 years for the adult Resident and 6 years for the child Resident (USEPA, 1991b and 2002). The averaging time for carcinogenic effects was 70 years and for non-carcinogenic effects it was the exposure duration (USEPA, 1989).

4.5 Toxicity Assessment

This subsection describes the process used to identify route-specific toxicity values for each COPC selected for further evaluation in the quantitative risk assessment of the on-site groundwater. Toxicity values are used in conjunction with the exposure assessment to calculate risks.

USEPA has conducted toxicity assessments for numerous chemicals which have undergone peer review and the resulting toxicity values have been published. These toxicity values include RfDs and RfCs for evaluating the non-carcinogenic health effects associated with exposures, and CSFs and URs for evaluating the carcinogenic health effects associated with exposure. Section 4.5.1 presents information regarding the identification of the non-carcinogenic toxicity values and Section 4.5.2 presents the information regarding the identification of the carcinogenic toxicity values used in the HHRA.

The preferential hierarchy of sources from which toxicological information and toxicity values were drawn was (USEPA, 2003):

- 1) Tier 1: USEPA's Integrated Risk Information System (IRIS). IRIS is an on-line database containing current toxicity values for many chemicals. These values have gone through a systematic USEPA consensus building and peer review process [<http://www.USEPA.gov/ncea/iris>] (USEPA, 2010c).
- 2) Tier 2: USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs). This source of toxicity values includes values developed by the Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Technical Support Center on a chemical-specific basis.
- 3) Tier 3: Other Sources of Toxicity Indices. Additional USEPA and non-USEPA sources of toxicity information were examined if there was no Tier1 or Tier 2 toxicity value for a COPC. These sources included the California Environmental Protection Agency Toxicity Criteria Database (CalEPA, 2009). Priority was given to those sources and values that were the most current, had supporting documentation that was transparent and publicly available, and had been peer reviewed.

The online database of chemical toxicity values maintained by the Department of Energy (DOE, 2010) was also consulted. A listing of the toxicity values selected for each identified non-carcinogenic and carcinogenic COPC is presented in Tables 4-5.1, 4-5.2, 4-6.1, and 4-6.2.

The list of COPCs was compared to the list of chemicals indicated to have a mutagenic mode of action for carcinogenesis to determine if any age-specific adjustments to the CSFs and URs were required for the early life exposures for the younger receptors. As none of the COPCs appeared on USEPA's published list of chemical or

compounds with a mutagenic mode of action, no age-dependent adjustment factors had to be applied to the cancer endpoint toxicity values.

4.5.1 Toxicity Values Relative to Non-Carcinogenic Health Effects

For non-carcinogens, the USEPA publishes oral RfDs and inhalation RfCs that are the chemical-specific doses below which no significant adverse health effects are expected. For chemicals that have non-carcinogenic effects, many authorities consider organisms to have repair and detoxification capabilities that must be exceeded by some critical level (threshold) before the health effect is manifested. For example, an organ can have a large number of cells performing the same or similar functions that must be significantly depleted before an effect on the organ is seen. This threshold view holds that a range of exposures from just above zero to some finite value can be tolerated by the organism without an appreciable risk of adverse effects.

An oral RfD, expressed in units of milligrams (mg) chemical intake/day/kg body weight, is an estimate of a daily exposure level for humans (including sensitive individuals) that is likely to be without an appreciable risk of adverse health effects during the period of exposure. The purpose of the RfD is to provide a benchmark value against which estimated doses (e.g., those projected for human exposures to various environmental media) might be compared. Doses that are higher than the RfD may indicate that an inadequate margin of safety could exist for exposure to that substance and that an adverse health effect could occur.

There are, at present, no USEPA-derived RfDs for the dermal route of exposure. Dermal RfDs were calculated from the oral RfD value using an oral-to-dermal adjustment factor. The oral-to-dermal adjustment factor is based on the chemical-specific gastrointestinal absorption efficiencies listed in USEPA RAGS Part E, Exhibit 4.1 (USEPA, 2004). The adjustment accounts for the absorption efficiency in the critical clinical or epidemiological study forming the basis of the published toxicity factor. The magnitude of the toxicity factor adjustment is inversely proportional to the absorption fraction in the critical study. As the absorption efficiency decreases the difference between the absorbed dose and administered dose increases. An adjustment was made to establish a dermal RfD when the oral absorption efficiency listed in RAGS Part E (USEPA, 2004) was below 50%. Complete (i.e., 100%) absorption was assumed and no adjustment of the oral toxicity factor was made to obtain a toxicity factor used for the dermal absorption route if this condition was not met. The chronic oral and dermal RfD values are listed in Table 4-5.1.

Non-carcinogenic toxicity factors for the inhalation route are typically expressed as RfCs. The inhalation RfC is an estimate of the air concentration in milligrams/cubic meter (mg/m^3) that an individual can breathe over the period of exposure without a risk of adverse health effects. Inhalation RfCs are developed to be protective of all adverse health effects, both systemic and portal-of-entry, associated with inhalation exposure. The chronic inhalation RfC values compiled for this HHRA are presented in Table 4-5.2.

4.5.2 Toxicity Factors Relative to Carcinogenic Health Effects

A CSF is a numerical estimate of the carcinogenic potency of a chemical, which, when multiplied by the average lifetime dose, gives the probability of an individual developing cancer over a lifetime. CSFs are expressed in units of the inverse of mg of chemical intake per day per kg of body weight $[(\text{mg}/\text{kg}\cdot\text{day})^{-1}]$. The underlying assumption used by USEPA for regulatory risk assessment for constituents known or assumed to be linked to potential carcinogenic effects is that no threshold dose exists. Accordingly, USEPA assumes that some level of potential risk is associated with any dose received, no matter how small.

The oral CSF values used in this HHRA are listed in Table 4-6.1. There are, at present, no USEPA-derived CSFs for the dermal route of exposure. Dermal CSF values are calculated from the oral CSF values using an oral-to-dermal adjustment factor. This adjustment for the oral CSFs was performed using the same general process applied for the oral RfDs, as described in Section 4.5-1. It is noted, however, that no adjustment of any CSF was required for this risk assessment. The oral and dermal CSF values selected for use in the HHRA are listed in Table 4-6.1.

Carcinogenic toxicity factors for the inhalation pathway are typically expressed as URs. The URs were compiled from the hierarchy of sources listed previously. The inhalation UR values compiled for this HHRA are listed in Table 4-6.2.

4.6 Risk Characterization

Risk characterization requires integrating exposure and toxicity information into a quantitative estimate of excess lifetime carcinogenic risk (ELCR) and non-carcinogenic Hazard Quotients and Hazard Indices (HQs and HIs). The intake, dose, or inhalation exposure to a COPC is estimated from as many as six basic factors: exposure frequency, exposure duration, and contact rate, COPC concentration in the exposure medium, body weight, and averaging time. Thereafter, the calculation of risks is performed by combining EPCs, exposure scenarios, and toxicity values using methods defined by USEPA to calculate potential carcinogenic and non-carcinogenic risks associated with current and future use exposure scenarios. The methods used to conduct the risk characterization portion of the HHRA are generally described below. Specifically, this subsection presents the equations for the CDI, DAD and airborne exposures, and presents the methods and metrics used to calculate HQs, HIs, and ELCRs.

4.6.1 Intake, Dose and Airborne Exposure Estimation

CDIs are calculated for the ingestion exposure pathway, DADs are calculated for the dermal absorption exposure pathway, and ECs are calculated for the inhalation pathway. CDIs and DADs are expressed as the amount of a chemical an individual would be exposed to daily per unit body weight (e.g., mg/kg-day). The formula used to calculate the CDI for ingestion of groundwater is:

$$CDI = \frac{CW \times IRW \times EF \times ED}{BW \times AT}$$

where:

CDI	=	Chronic Daily Intake (mg/kg-day)
CW	=	Chemical Concentration in Groundwater (mg/L)
IRW	=	Ingestion Rate (L/day)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
BW	=	Body Weight (kg)
AT	=	Averaging Time (days)

The formula used to calculate the DAD for groundwater is:

$$DAD = \frac{DA_{event} \times EV \times SA \times EF \times ED}{BW \times AT}$$

where:

DAD	=	Dermally Absorbed Dose (mg/kg-day)
DAevent	=	Absorbed dose per event (mg/cm ² -event)
EV	=	Event Frequency (events/day)
SA	=	Skin Surface Area available for contact (cm ²)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
BW	=	Body Weight (kg)
AT	=	Averaging Time (days)

The parameter DAevent is chemical-specific and exposure scenario-specific, and is calculated differently (see also the footnote to Tables 4-4.3 through 4-4.6), depending on whether the COPC is an organic or inorganic compound and (if an organic compound) on the properties of the compound. The chemical-specific parameters used in the calculation of the DAevent are presented in Table 4-4.2 and the DAevent calculations are presented in Tables 4-4.3 through 4-4.6.

The formula used to calculate the inhalation of volatiles is:

$$EC = CW \times K \times CF$$

where:

EC	=	Airborne Exposure Concentration (mg/m ³)
CW	=	Concentration in Groundwater
K	=	Volatilization Factor relative to household uses of water (unitless)

This Volatilization Factor (K) is defined in the context of the Andelman approach (Andelman, 1990) to the inhalation exposure to volatiles as described in RAGS Part B. This approach relates the concentration of a volatile contaminant in household water to the concentration of the volatilized contaminant in the indoor air. Inhalation exposures were not calculated for inorganic COPCs since they are not volatile.

The CDIs, DADs, and ECs are averaged over a lifetime (i.e., 70 years) for the carcinogenic COPCs and over the exposure duration for the non-carcinogenic COPCs (USEPA, 1989) for all receptors.

4.6.2 Risk Calculation Protocols

For non-carcinogens, exposure pathways were evaluated by comparing chemical-specific CDIs and DADs to their associated RfDs for oral and dermal intake, and comparing chemical-specific ECs to their associated RfCs for inhalation intake. Potential non-carcinogenic effects are evaluated using these ratios for each COPC:

$$HQ_i = \frac{CDI_i}{RfD_i} \quad HQ_i = \frac{DAD_i}{RfD_i} \quad HQ_i = \frac{EC_i}{RfC_i}$$

where:

HQ _i	=	Hazard Quotient for chemical i for the given intake route (unitless)
CDI _i	=	Chronic Daily Intake for chemical i for the ingestion intake route (mg/kg-day)
RfD _i	=	Reference Dose for chemical i for the given intake route (i.e., ingestion or dermal absorption) (mg/kg-day)
DAD _i	=	Dermally Absorbed Dose for chemical i for the dermal absorption intake route (mg/kg-day)
EC _i	=	Exposure Concentration for chemical i for the inhalation intake route (mg/m ³)
RfC _i	=	Reference Concentration for chemical i for the inhalation intake route (mg/m ³)

The sum of all of the HQ ratios for all exposure pathways for the COPCs for each receptor is called the Hazard Index (HI). An HQ or HI (as appropriate) less than or equal to one is unlikely to be associated with health effects

and is, therefore, less likely to be of concern than an HQ or HI greater than one. However, a conclusion should not be drawn categorically that all HQs or HIs less than one are “acceptable” or that all HQs and HIs greater than one indicate that health effects will occur. This is due to the uncertainties inherent in the derivation of the RfDs of RfCs. HIs should not be summed across age groups. Tables 4-7.1 through 4-7.4 present the EPCs, calculated daily dose/intake quantities, RfD/RfC toxicity parameters, and individual HQs for each receptor and exposure pathway combination relative to the on-site groundwater.

The potential cancer risk due to exposure to a specific carcinogenic compound is calculated by multiplying chemical-specific CDIs, DADs, and ECs with their associated CSFs or URs for the oral, dermal, and inhalation routes, respectively. The sum of all of these products for the COPCs for each receptor in each medium is called the excess lifetime cancer risk (ELCR), and is calculated as shown below:

$$ELCR = CDI_i \cdot CSF$$

$$ELCR = DAD_i \cdot CSF$$

$$ELCR = EC_i \cdot UR$$

where:

ELCR	=	Excess Lifetime Cancer Risk for the given intake route (ingestion, dermal absorption, or inhalation) (unitless)
CDI_i	=	Chronic Daily Intake for chemical i for the ingestion intake route (mg/kg-day)
DAD_i	=	Dermally Absorbed Dose for chemical i for the dermal absorption intake route (mg/kg-day)
EC_i	=	Exposure Concentration for chemical i for the inhalation intake route (mg/m ³)
CSF_i	=	Cancer Slope Factor for chemical i for the given intake route (mg/kg-day) ⁻¹
UR_i	=	Unit Risk for chemical i for the inhalation intake route (mg/m ³)

For the purposes of the HHRA, cancer risks for exposure to multiple carcinogenic COPCs were assumed to be additive. USEPA has established a target risk range of 1×10^{-6} and 1×10^{-4} for reference purposes for site management under CERCLA. A 1-in-1,000,000 cancer risk (i.e., 1×10^{-6}) means that in a population of 1,000,000 people exposed under an identical exposure scenario (i.e., who had exactly the same CDI of a carcinogen over the same period), there would be one additional case of cancer in the population. An ELCR below or within this range is less likely to be of concern than an ELCR exceeding the upper limit of this range (1-in-10,000, or 1×10^{-4}). Tables 4-7.1 through 4-7.4 present the EPCs, calculated COPC intake quantities, CSF or UR toxicity parameters, and the calculated cancer risks for each receptor and exposure pathway combination relative to the on-site groundwater.

Example intake/exposure and risk/hazard calculations for one carcinogenic and one non-carcinogenic COPC for each quantitatively evaluated exposure pathway identified in the CSM (Table 4-1) are presented in Appendix D. The sample calculation results presented in Appendix D are referenced back to the tables in which that quantity was actually calculated for the assessment. These examples provide an indication of the quality control checks that were performed for all calculations associated with the HHRA.

4.7 Results of the Quantitative Risk Assessment of the On-Site Groundwater

This subsection presents the results of calculations of potential cancer and non-cancer risks for each receptor relative to the assumed exposures to the on-site groundwater. The risk calculations are presented in Tables 4-7.1 through 4-7.4. The calculated results for each of the receptors are presented sequentially in the sections that follow.

4.7.1 Future Park Worker

The ELCR and HI associated with the assumed future exposure of a Park Worker to the on-site groundwater were calculated to be 3.3×10^{-5} and 0.31, respectively (see Table 4-7.1). The cancer risk estimate is within the USEPA reference cancer risk range of 1×10^{-6} to 1×10^{-4} , and the non-cancer HI is below the USEPA threshold of 1.0.

4.7.2 Future Park User

The ELCR and HI associated with the assumed future exposure of a Park User to the on-site groundwater were calculated to be 1.7×10^{-6} and 0.052, respectively (see Table 4-7.2). The cancer risk estimate is within the USEPA reference cancer risk range of 1×10^{-6} to 1×10^{-4} , and the non-cancer HI is below the USEPA threshold of 1.0.

4.7.3 Future On-Site Residents (Adult and Child)

The ELCR and HI projected for the hypothetical future adult Resident were calculated to be 2.0×10^{-4} and 1.5, respectively (see Table 4-7.3). The ELCR and HI for the child Resident were calculated to be 9.8×10^{-5} and 3.5, respectively (see Table 4-7.4). These cancer risk estimates exceed the USEPA reference cancer risk range of 1×10^{-6} to 1×10^{-4} , and the non-cancer HIs exceed the USEPA non-cancer effects threshold of 1.0. The ingestion of arsenic in the groundwater via drinking and, to a much lesser extent, the inhalation of MTBE released from the groundwater into houses during domestic use of the water were the primary contributors to the projected risks relative to these hypothetical future residential exposures. These COPCs are discussed separately below.

The ingestion of arsenic contributed approximately 95% of the projected ELCR and HI for the child and adult Residents. Arsenic was detected only in one of sixteen (16) original samples and only at the April 2007 sampling event. The lone detection was at a concentration of 11 $\mu\text{g/L}$, which is just above the USEPA SDWA MCL and NHDES MCL of 10 $\mu\text{g/L}$. Although there is no site-specific background concentration for arsenic from the sampling of MW 25B (all samples were non-detect at less than 10 $\mu\text{g/L}$), it is likely that the concentration of arsenic detected in groundwater during this one sampling event is naturally occurring. Arsenic is a naturally occurring element that is found in the bedrock, soils, and groundwater throughout New England and southern New Hampshire. A study by the USGS indicated that arsenic was detected at concentrations that exceeded the USEPA SDWA MCL and NHDES MCL of 10 $\mu\text{g/L}$ in 21% of private wells in Hillsborough County even though the geologic formation underlying the town of Milford was not found to be uniformly high in arsenic (USGS, 2003). Other studies indicate that arsenic concentrations in groundwater are heavily influenced by the bedrock geology and lithology of the area (Ayotte, et. al., 1999; Robinson and Ayotte, 2007). As arsenic is not associated with the upgradient sources relative to OU2, the arsenic contributing to the calculated risks relative to the on-site groundwater is not indicated to be due to former activities at the Fletcher's Paint Facility. Given the low frequency and detected concentration of arsenic, the indication that the concentrations of arsenic that were detected were due to background sources, and the lack of an association between arsenic and the activities previously performed at the Fletcher's Paint Facility, the exceedances of the ELCR do not represent a significant potential risk.

The contribution of MTBE to the ELCR for the adult and child Resident was calculated to be 7.4×10^{-6} and 6.9×10^{-6} , respectively. This chemical-specific cancer risk estimate is within the USEPA reference cancer risk range of 1×10^{-6} to 1×10^{-4} . Therefore, no action is required because of the carcinogenic risks from the inhalation of MTBE. As discussed in Section 4.3.3, the MTBE detected in the on-site groundwater is very likely due to upgradient sources that are currently being addressed. As such, the presence of MTBE in the on-site groundwater would be expected to be a short-term situation. This would have to be verified by a selected re-sampling of certain on-site wells.

4.8 Screening Level Risk Assessment of the Upgradient Groundwater

4.8.1 Approach

The groundwater data for the upgradient wells was compiled and a screening level risk assessment relative to potential drinking water exposure was performed. The upgradient wells included three Xtramart monitoring wells (i.e., XM MW-10, XM MW-11, XM MW-13), monitoring well MW-18B, and monitoring well KW03D. The locations of these wells are shown on Figure 3-1.

The compiled upgradient well groundwater data was analyzed to identify the maximum detected concentration in any upgradient well over the sampling period (i.e., April 2007 through January 2010). This maximum detected contaminant concentration, the monitoring well where that concentration was detected, and the year that that sample was collected, were recorded. This concentration was then compared to a set of drinking water-related standards and risk-based screening values for that compound, selected from the following hierarchy:

1. USEPA Safe Drinking Water Act and NHDES Chapter Env-DW 700 Drinking Water Quality Standards for Public Water Supply Systems MCLs (Note: The federal and state limits are the same for each detected contaminant);
2. USEPA Safe Drinking Water Act and NHDES Chapter Env-DW 700 MCL Goals (MCLGs) (Note: The federal and state limits are the same for each detected contaminant); and
3. USEPA Risk-Based RSLs for Tapwater (Note: These RSLs are back-calculated groundwater concentrations projected to result in a single chemical ELCR of 1×10^{-6} or a single chemical non-cancer HI of 1 assuming a residential drinking water exposure scenario).

4.8.2 Results

Table 4-8.1 presents a summary of this screening level risk assessment of the upgradient groundwater. The results are as follows:

- The maximum detected concentrations of benzene and trichloroethylene exceeded both their federal/state MCLs and their respective USEPA RSLs for tapwater;
- The maximum detected concentrations of iron exceeded its federal Secondary Drinking Water Standard and its NHDESs MCL;
- The maximum detected Total PBCs concentrations exceeded both of its listed standards and screening levels, due to the presence of the homologues Aroclor 1221, Aroclor 1242 and Aroclor 1260; and
- The maximum detected concentrations of 1,2-dibromoethane, 1,2,4-trichlorobenzene, 1,2,4-trimethylbenzene, chloroform, ethylbenzene, and naphthalene exceeded their risk-based USEPA RSLs for tapwater.

This screening analysis revealed that groundwater upgradient of Keyes (i.e., to the southwest and southeast) has or is likely to have contaminant levels that exceed thresholds for a public drinking water supply. Characterizations of the hydraulic conductivities in the overburden glacial deposits and in the underlying bedrock indicate that a significant cone of depression would likely be created if the Keyes Well were to be re-activated to extract water for public consumption. This pumping would be expected, based on past experience when the municipal well was formerly in use, to draw groundwater from these upgradient locations. The exact quality of the groundwater that would be produced by a re-activated Keyes Well cannot be projected without a specific analysis of the potential pumping scenario. However, the screening assessment suggests that pumping the Keyes Well would likely draw contaminated upgradient groundwater under Keyes Field and re-contaminate the on-site groundwater.

4.9 Uncertainty Analysis

Quantitative risk assessments inherently contain elements of variability and uncertainty. The sources and implications of the variabilities and uncertainties were examined to provide perspective on the accuracy and level of conservatism inherent in the underlying assumptions and, consequently, the risk estimates produced by this HHRA. This information is presented with the goal of helping make more informed decisions about how to interpret and manage the projected risks. The following subsections address the primary uncertainties and their implications relative to potential uses of the on-site and upgradient groundwater.

4.9.1 Uncertainties Associated with Data Selection and Hazard Assessment

4.9.1.1 Available Wells and Sampling Results

For this HHRA, groundwater data collected from the most recent sampling events at the on-site OU2 wells and the upgradient wells were evaluated. Sampling results going back approximately 4 years (starting in April of 2007) were evaluated for inclusion in the risk assessment databases. The data obtained from seven on-site well locations were considered, but only five of these wells had been sampled during the last four years (i.e., OW2/OW2P, KW01D/S, Keyes Well, MW05A/BR, and MW06A/B). On-site monitoring well KW02 had been damaged and was not sampled during this time frame, and on-site monitoring well OW3 also was not sampled since 2007. The data obtained from five upgradient well locations were considered, and all five wells had been

sampled during the last four years (i.e., XM MW 18B, XM MW-10, MW-11, XM MW-13, KW03D). The groundwater data from MW-25B was considered to be representative of site background conditions. There was considerable variability in the frequency at which these wells were sampled during the past four years. With respect to the on-site wells, some were sampled only once since 2007, while others have been sampled six to eight different times. With respect to the upgradient wells, one was sampled only once since 2007, while others have been sampled as many as 11 different times. The background well was sampled seven different times. Often, a well was not re-sampled because it had been vandalized and damaged and could no longer be used. Groundwater sampling on-site and in the immediately upgradient areas has been performed by three different groups in response to different projects and project objectives. Consequently, there have been differences in the suites of analytes tested for in different wells at different times. Despite the known variability in these factors, the groundwater data set developed for this HHRA represents the most spatially representative and highest quality data available for estimating the risks associated with potential on-site and upgradient groundwater uses.

4.9.1.2 Dynamic Conditions and Temporal Representativeness

All sampling performed during this four year time frame has been conducted while the Keyes Well was not in use and not impacting the local groundwater flow rates and directions within its zone of influence when it operates. No detailed analysis has been performed of the likely groundwater flow and contaminant dilution that could occur beneath OU2 if the Keyes Well were to be re-activated in the future. However, it is likely that some of the contamination currently present in the upgradient wells would be drawn into the groundwater beneath Keyes Field. In addition, some of the sampling results that impacted the risk assessment data set, the calculated EPCs, and the projected risks most were associated with sampling performed at the earliest point in the time frame. Given the hydraulic conductivities and gradients indicated to be associated with OU2 (ADL, 1994a), some of this dissolved on-site contamination is likely to have migrated from under the park and be no longer present in OU2 while some of the dissolved upgradient contamination might now be encroaching on OU2. It is difficult to estimate the net effect of these dynamic forces on the projected risks of current conditions within the groundwater beneath Keyes Field.

4.9.1.3 Characteristics of the Data Sets and Their Impact on the Calculated EPCs

The constituents detected in the groundwater associated with the on-site and upgradient wells were primarily metals, and a few VOCs and SVOCs. Typically, the VOCs and SVOCs were detected very infrequently in the respective wells over the stated time frame. Accordingly, the data sets for these compounds had a high percentage of non-detect results and generally non-parametric distribution types. The newest version of ProUCL was used to quantify the groundwater EPCs. This version allows EPCs to be generated with explicit evaluation of non-detect sampling results using the most recent statistical approaches identified for that purpose. Even though this tool was applied to the data sets, suitable EPCs could not be identified for all detected constituents and their maximum detected concentrations had to be used as their EPCs in the risk calculations. This is likely to lead to an overestimation of the actual risks.

The detections of BEHP were found upon closer examination of sample and blank results to very likely to be associated with laboratory contamination. The lone detection of MTBE in the on-site wells would appear to be associated with migration of the upgradient contamination as MTBE is not associated with the Site.

4.9.1.4 Selection of Chemicals of Potential Concern for Analysis in the HHRA

A conservative screening was used to select COPCs for each exposure medium. Highly conservative screening levels were used to select which COPCs would be carried through the risk assessment. The screening criteria used for groundwater were developed for a residential drinking water exposure scenario. Given the small number of wells and sampling results available for certain analytes, a constituent was conservatively retained as a COPC in groundwater for this HHRA when it was only detected in one well at one point in time if that single detected concentration exceeded the relevant screening criterion. Both MTBE and arsenic were retained as COPCs based on one detection in one well at one point in time. In both of these cases, the lone detected concentration exceeded the Screening Toxicity Value. Given that there were cases of an analyte being detected in a sample but not in its duplicate, there is uncertainty as to whether these lone detections are real. Comparisons to background concentrations were not used to eliminate any constituents from quantitative consideration in the HHRA. Overall,

the COPC screening process applied for this assessment resulted in the conservative inclusion of constituents as COPCs.

4.9.1.5 Background Concentrations

Only one well was identified as being representative of background conditions relative to the OU2 groundwater (MW-25B). This well was sampled quarterly by GE for VOCs, manganese, and PCBs from July 2007 through October 2008 due to project-specific objectives related to OU1. In addition, full Target Compound List/Target Analyte List (TCL/TAL) sampling is conducted biennially during September/October. The sampling frequency for monitoring well MW-25 was changed after October 2008 from quarterly to once a year in September/October so that it coincides with the biennial TCL/TAL monitoring events. Although arsenic, iron, and aluminum were identified as COPCs, they are not linked to or associated with a specific on-site or OU1 source. As such, their presence in the OU2 groundwater is likely to be due to natural occurrence. As noted previously, many studies of arsenic in New England, New Hampshire, and Hillsborough County have documented naturally occurring arsenic in groundwater in excess of 10-20 µg/L at many locations in and around Milford (and as high as 30 µg/L in parts of southeastern New Hampshire) due to the local lithography and physiochemical conditions in the soil (Ayotte et al., 1999; USGS, 2003; Robinson and Ayotte, 2007). The single detection at 11 µg/L is believed to be due to natural causes. This single result became the EPC for arsenic and was a significant contributor to the projected cancer and non-cancer risks associated with potential future uses of the groundwater.

4.9.1.6 Uncertainties Associated with the Exposure Assessment

Reasonable maximum exposure scenarios were identified for each receptor of interest and corresponding exposure parameters were selected in relation to the potential intakes from the ingestion, dermal absorption, and inhalation of groundwater contaminants. The most likely future use of Keyes Field is its present use as a municipal park. As such, the future Park Worker and future Park User were the most directly relevant receptors of interest. Site-specific exposure parameters were adopted in consideration of actual schedules for park availability, park features, and observations of the age characteristics of the Park Users. As such, these parameters are believed to be very reasonable and representative of current Park Workers and users.

The park is currently serviced by a municipal water supply that does not draw on the OU2 groundwater as a source. The HHRA was performed for the future Park Worker and future Park User assuming that the local groundwater would once again in the future be used as a municipal supply and provide the drinking water and ancillary water needs (e.g., washdown, irrigation, filling the pool) of the park. It must be emphasized that the risk results for these two receptors assumes these groundwater uses and potential exposures that are not currently occurring. These hypothetical exposures reflect a conservatively high level of exposure for these receptors in a park scenario.

Residential reuse of the park land is considered to be very unlikely due to the existence of the park and the likelihood of flooding in this low-lying area next to the Souhegan River. The projected risks for a hypothetical future Adult and Child Resident were calculated to establish a baseline for unrestricted groundwater use. Inhalation of volatile constituents in the groundwater for these hypothetical future residential receptors was modeled using the USEPA Region 1-recommended Andelman approach that estimates the average concentration of liberated volatiles in air from the full range of household water uses (e.g., showering, laundering, dish washing). As such, the risk contributions from this pathway are not likely to have been underestimated.

Dermally absorbed doses were calculated for every COPC, regardless of whether all of the required intake parameters were available in RAGS Part E. Appropriate estimation techniques and alternate sources of chemical properties were used to fill the parameter gaps and allow the dermal intakes to be calculated. Use of this approach may have led to an over-estimation of the risks associated with potential dermal exposure to the groundwater.

4.9.2 Uncertainties Associated with the Toxicity Assessment

The hierarchy of toxicity value resources recommended by USEPA (USEPA, 2003) was used to compile the required toxicity factors for identified COPCs. The full hierarchy was used in the compilation; however, most of the toxicity values were taken from the first tier reference, IRIS, USEPA's toxicity database. A few Tier 2 or Tier 3 toxicity values had to be adopted from other USEPA sources or taken from the noted references. Most notable

were the Tier 2 PPRTV RfDo values for aluminum and iron, and the RfC for arsenic and the Tier 3 oral CSF and UR values for MTBE from CalEPA. These values reflect greater uncertainty and built-in conservatism and their use is likely to have led to an over-estimation of risk for these constituents.

Considerable uncertainty can be associated with qualitative (hazard assessment) and quantitative (dose-response) evaluations. Hazard assessment characterizes the nature and strength of the evidence of causation or the likelihood that a chemical that induces adverse effects in animals will induce adverse effects in humans. Hazard assessment of carcinogenicity is currently evaluated as a weight-of-evidence determination, using USEPA (1989) classifications. Positive results in animal cancer tests suggest humans may also manifest a carcinogenic response, but animal data cannot necessarily be used to predict target tissues in humans. In the hazard assessment of non-carcinogenic effects, positive animal test results may suggest the nature of possible human effects (i.e., target tissues and type of effects) (USEPA, 1989).

4.10 Summary and Conclusions

The quantitative risk assessment performed relative to potential exposures to the on-site groundwater focused on a future Park Worker, a future Park User, and hypothetical future Residents who could be exposed to the on-site groundwater as tapwater in a domestic setting if the Keyes Well were to be re-activated and the groundwater used to supply the public water system. The exposure scenarios evaluated for the future Park Worker and the future Park User assumed that all water used at the park for all needs (e.g., drinking, irrigation, washing, filling the pool) would come from the on-site groundwater. This included potential ingestion (i.e., drinking) as well as potential dermal absorption exposures due to direct contact with the groundwater during these uses. It must be emphasized that the water currently available at the park is municipally supplied from other sources (i.e., not the on-site groundwater). The calculated risks for the future Park Worker and the future Park User under these potential future exposure scenarios did not exceed the USEPA cancer risk reference range or non-cancer thresholds. The calculated risks for the hypothetical Resident (adult and child) under the scenario of the on-site groundwater as a municipal water supply did exceed both the USEPA cancer risk reference range and the non-cancer HI threshold. However, the exceedance of the USEPA cancer risk reference range was almost entirely due to a one time detection of arsenic at a concentration just over the detection limit and MCL standard. This detection of arsenic was determined to likely be due to the naturally occurring arsenic in the area's bedrock and lithology. The only other compound in the on-site groundwater that contributed to any significant degree to the calculated risks was MTBE. However, MTBE was only detected in one well in 2007 and was very likely due to upgradient off-site sources that are currently being addressed. The lone detection of MTBE contributed to future risk, however the future groundwater risk would be expected to actually decrease with the expectation that no additional detections of this compound will be found due to the on-going work to address and monitor this upgradient source. As such, the MTBE is not indicated to be due to any release from the Fletcher's Paint Superfund Site and is not expected to pose a long-term concern if upgradient sources continue to be addressed and monitored.

The screening level risk assessment performed relative to the upgradient groundwater revealed that this groundwater has or is likely to have contaminant levels that exceed thresholds for a public drinking water supply. Characterizations of the hydraulic conductivities in the overburden and in the underlying bedrock (USGS, 1996) suggest that a cone of depression would likely be created if the Keyes Well were to be re-activated to extract water for use as a public supply. This pumping would be likely, based on past experience, to draw groundwater from these upgradient locations and re-contaminate the on-site groundwater. A Keyes Well re-activation scenario should not be considered until the various sources of the upgradient contamination are identified and remediated. It is assumed, given the ongoing remediation and groundwater monitoring efforts associated with the Xtramart site under the NHDES regulations (NHDES Site No. 199404027), that the contamination associated with the Xtramart property is unlikely to impact Keyes Field groundwater in the future if the Keyes Well remains inactive until this off-site source has been remediated.

5.0 SUMMARY OF SOUHEGAN RIVER INVESTIGATIONS

The summary presented in this section was compiled primarily from the Field Report of Sediment Sampling on the Souhegan River (Woods Hole Group, 2005), Souhegan River Supplemental Investigation Data Summary Report (ARCADIS, 2007), and BHHERA (Battelle, 2011). This section describes the previous investigations that were conducted at in the Souhegan River study area and summarizes the resulting analytical data.

Analytical chemistry data from the Souhegan River study area have been collected from 1991 through 2007. Data collected between 1991 and 1994 were used to support the RI and previous risk assessments (ADL, 1994a; 1994b; 1997). Historic investigations indicate that PCB, VOC, SVOC, and heavy metal contamination has migrated to the river via former Fletcher's Paint manufacturing activities, improper storage of drums, and runoff from the Elm Street Area, as well as surface water runoff from Mill Street, through the drainage ditch/culvert system.

Table 5-1 summarizes the historic investigations conducted for the Souhegan River study area. The locations and sample types for the 2004, 2006, and 2007 investigations within the Souhegan River study area are presented in Figure 5-1. The samples were assigned to Areas A, B, and C depending on whether they were adjacent to, downstream from, or upstream from the Elm Street Area, respectively. All data used in the risk assessments (i.e., 2004, 2006, and 2007 datasets) are provided in summary tables in Appendix A of the supplemental BHHERA (Battelle, 2011).

5.1 Historical Data – 1990s Investigations

Sampling activities in the 1990s involved the collection of sediment and surface water samples from 22 locations within the Souhegan River for miscellaneous analyses. Most of the samples were collected between 1991 and 1993, and additional surface water and sediment samples, as well as biota samples, were collected in November 1994 to support the previous BHHERA and RI (ADL, 1994a, 1994b; 1997). Included in this dataset were biological samples from several species of fish captured in the Souhegan River. These samples included the collection of 20 fillet samples, 20 offal (i.e., the carcass remaining after removal of the fillets) samples, and 40 whole fish samples for analysis of pesticides and PCBs. Twenty mussel samples were also collected for analysis of pesticides and PCBs.

In addition to data collection activities, ecological assessment studies were also conducted during the 1990s. The Preliminary Ecological Assessment (ADL, 1994b, 1997) evaluated available analytical data for sediment, surface water, and tissue; and calculated both total site and incremental ecological risks to ecological receptors. This assessment identified significant risks to both benthic and pelagic organisms associated with exposure to PCBs and pesticides. In addition, these reports concluded that these contaminants of potential concern (COPCs) posed a bioaccumulation hazard to wildlife species (including the same representative species evaluated in this report) that were exposed to the aquatic food chain in the vicinity of the Elm Street Area. These investigations identified elevated risk quotients for benthic and pelagic biota and upper trophic level receptors from exposure to polychlorinated biphenyls (PCBs) and pesticides (ADL, 1994a; 1994b; 1997). PCBs also contributed the majority of potential cancer risk to humans from Souhegan River sediments (ADL, 1994a).

5.2 2004 Investigations

In 2004, supplemental sediment investigation activities were performed on behalf of USEPA in the section of the Souhegan River immediately adjacent to the Elm Street Area. Surficial sediment samples (top three inches) were collected from 31 sampling locations (Figure 5-2) and analyzed for PCBs, polycyclic aromatic hydrocarbons (PAHs), pesticides, metals, and VOCs. Elevated PCB concentrations were found in the sediments collected near the Elm Street Area. Woods Hole Group Environmental Laboratories (WHGEL) was contracted by the CENAE to perform sediment sample collection activities and chemistry analyses (WHGEL, 2005).

Table 5-2 presents the analytical results for all sediment samples collected during 2004. The results were compared against Threshold Effects Concentrations (TEC) and Probable Effects Concentrations (PEC) for those analytes with established TEC and PEC values. TECs and PECs are consensus-based sediment quality guidelines (SQGs) derived from previously-published numerical SQGs for freshwater ecosystems. TECs provide a basis for predicting the absence of sediment toxicity, whereas PECs provide a basis for predicting

sediment toxicity. Both TECs and PECs are derived from SQGs that are based on biological effects, therefore they can be used to assess the potential for and spatial extent of harm to sediment-dwelling organisms. (MacDonald et al, 2000).

5.2.1 PCBs

The 2004 data indicates that PCB contamination was still prevalent in the sediment particularly adjacent to Elm Street Area. Ten of the 31 sediment samples had PCB levels above the TEC criteria of 0.060 mg/kg, and eight of the 31 samples had PCB levels above the PEC criteria of 0.676 mg/kg. Contaminant concentrations were compared to the consensus based screening criteria presented in MacDonald et al., 2000 to determine if any contaminants exist at elevated levels or if any contaminants pose a threat to aquatic biota. The highest PEC exceedances for total PCBs occurred at sampling locations adjacent to the Elm Street Area: SD-13 (36.3 mg/kg), SD-15 (7.35 mg/kg), and SD-08 (15.0 mg/kg). Of the three sediment samples that were collected downstream of the Elm Street Area, PCBs were not detected at two locations, while one location (SD-34) had total PCBs levels below the TEC criteria (Gomez and Sullivan, 2011).

5.2.2 PAHs

Ten of the 31 samples had PAH levels above the TEC criteria with no detections above the PEC criteria. Parameters of concern include benzo(a)anthracene, benzo(a)pyrene, chrysene, and phenanthrene. No TEC exceedances were observed in the three sediment samples downstream of the Elm Street Area (SD-30, SD-32, and SD-34).

5.2.3 Pesticides

Pesticides were not detected at any of the 31 sample locations.

5.2.4 Metals

Only one sample had a TEC exceedance for metals. Arsenic was detected at 11 mg/kg at location SD-22, adjacent to the Elm Street Area. No detections were found above the PEC criteria for metals.

5.3 2006 Investigations

A sediment probing survey was conducted, and additional sediment and fish tissue data were collected in 2006 by USEPA and GE to more fully characterize the current nature and extent of PCB contamination in the Souhegan River adjacent to the Elm Street Area and downstream as far as the Goldman Dam (ARCADIS, 2007). The 2006 fish and sediment sampling locations are presented in Figure 5-3.

5.3.1 Fish Investigations

Fish tissue samples were collected from all three areas of the Souhegan River (Areas A, B, and C) for a total of 115 samples. A summary of the fish collection information, including location, species, length, and weight, is provided in Table 5-3. Species of fish included redbreast sunfish (*Lepomis auritus*), yellow and brown bullheads (*Ameiurus natalis* and *A. nebulosus*, respectively), and white sucker (*Catostomus commersonii*).

The samples were split by a USEPA-associated laboratory and analyzed for PCB congeners. The split samples were submitted to a GE-associated laboratory for the analysis of PCB Aroclors, metals, pesticides, PAHs, and percent lipids. Specifically, 57 of the 115 samples (including 18 adult redbreast sunfish, 21 adult yellow bullhead, and 18 composite white sucker forage fish samples) were sent to Northeast Analytical, Inc. (NEA) located in Schenectady, New York (ARCADIS, 2007). NEA was under contract to GE. The remaining 58 samples (including 18 adult redbreast sunfish, 18 adult yellow bullhead, four adult brown bullhead, and 18 adult white sucker samples) were sent to Alpha Woods Hole Laboratory (AWHL) located in Westborough, Massachusetts. AWHL was under contract to the CENAE.

Table 5-4 presents the PCB Aroclor data, PCB congener data, and percent lipids data for the 36 sport fish samples (18 redbreast sunfish and 18 yellow bullhead) analyzed by NEA and AWHL. This table also includes PCB Aroclor and percent lipid data for the 18 composite forage fish samples (white sucker) analyzed by NEA. In addition, although the four brown bullhead and 18 individual whole-body white suckers were sent to AWHL for potential use as substitute species in the event that sufficient sport fish samples or tissue mass were not

collected to perform the required analyses, these fish were analyzed by AWHL for PCB congeners and also by NEA for PCB Aroclors. The data for these extra analyses are also included in Table 5-4 (ARCADIS, 2007).

The PAH, organo-chlorine pesticide, TAL metals, and percent lipids data for the 39 sport fish samples (18 redbreast sunfish and 21 yellow bullhead) and 18 composite forage fish samples (white sucker) analyzed by NEA are presented in Table 5-5.

5.3.2 Sediment Probing Survey

The supplemental sediment investigation activities were performed in two sequential phases (i.e., sediment probing followed by sediment sampling) upon completion of the fish collection activities. First, sediment was probed along transects established at regular intervals along an approximate 1-mile long section of the Souhegan River, extending from the Goldman Dam located approximately ½ mile downstream from the Elm Street Area to about ½ mile upstream from the Elm Street Area (ARCADIS, 2007).

In summary, sediment probing activities were performed along 23 total transects within the study area at the locations shown on μ g. At each transect location, the locations of the edge of water, including the date and time they were located, were documented and sediment was probed at each edge-of-water location. Transect endpoints (i.e., top of bank) were surveyed for geographic reference, and the sediment thickness and water depth was measured at approximately eight regular intervals across the river channel. Finally, any other physical changes in the river channel (e.g., boulder fields, small islands, etc.) were also documented in the field notes (ARCADIS, 2007). These features are included on Figure 5-4. The results of the sediment probing activities along the 23 transects are presented on Table 5-6, while transect descriptions and observations are presented on Table 5-7. The sediment thickness just upstream of the Goldman Dam (Transect 1) ranges from none to approximately two feet, while the maximum observed thickness of almost nine (9) feet was adjacent to the Elm Street Area (Transect 15).

Between surveyed transects, the river channel was observed, and significant variations in the sediment bed (i.e., sediment deposits, as further described below) were described and located in the field relative to the transect locations. Sediment deposits identified during the sediment probing activities were characterized with respect to texture (e.g., fine versus coarse) as well as localized geomorphologic characteristics of the river, including channel geometry, terraces, aggrading bars, and bank slopes. The type of sediment deposit, sediment composition, relative presence of organic material, surface area, and average depth (estimated with a probing rod) were noted. Based on the results of the sediment mapping, areas and volumes of sediment with similar geomorphological traits were estimated to determine the relative prominence of each. The sediment probing activities associated with the sediment deposits are summarized on Table 5-8. The transect locations, sediment deposits, and other notable physical features are presented on Figure 5-4.

5.3.3 Sediment Investigations

Sediment core samples were collected from up to four depth intervals (0-6, 6-12, 12-24, and 24-56 inches), depending on location, from the three areas of the Souhegan River (Figure 5-3). A total of 42 sediment cores were collected and split. The samples were analyzed by the USEPA laboratory for PCB congeners and by the GE laboratory for PCB Aroclors, total organic carbon (TOC), and percent moisture. Samples were also submitted to Severn Trent Laboratories (STL), under a contract to GE, for the analysis of SVOCs, pesticides, metals, and grain size. The sediment sampling program and analytical results are presented in Table 5-9 and summarized below. Complete details are available in the *Souhegan River Supplemental Investigation Data Summary Report* (ARCADIS, 2007).

PCBs - The results of the 2006 investigation indicate that PCB contamination is still present in the Souhegan River in the vicinity of the Elm Street Area. Twenty-three (23) of the 42 sample sites contained total PCB concentrations higher than the TEC criteria. Six sites had total PCBs higher than the PEC criteria, including five sample locations adjacent to the Elm Street Area (SD26, SD27, SED-2A, T-15-6, and T-15-7A), and one site just upstream of Goldman Dam (T-1-4). The sediment core collected at sample site T-1-4 was split into two subsamples representing different depths. The top layer (0-6 inches) was relatively clean with a detected total PCB concentration of 0.048 mg/kg, which is below the TEC. The deeper sediment (6-10 inches) had a reported

total PCBs of 1.4 mg/kg, in excess of the PEC criteria (0.676 mg/kg). This suggests that historical PCB contamination that may have originated from upstream is now located beneath more recently deposited sediment containing lower levels of PCBs.

For the other five sample locations that contained PCBs in excess of the PEC criteria, a similar trend of higher contaminant levels deeper in the sediment column was observed at sample locations SD-27, T-15-6, and T-15-7A. The highest total PCBs concentration (170 mg/kg) was detected in the 6-13 inch depth at site SD-27, which is adjacent to the Elm Street Area. In addition, total PCB concentrations at sample location T-15-7A, which is located immediately adjacent to the Elm Street Area, were elevated at each depth interval including a concentration of 18 mg/kg in the deepest sample collected (48-56 inches).

Pesticides - Pesticides were detected above the TEC at nine (9) of the 42 sample locations, including sampling locations adjacent to and downstream of the Elm Street Area. At one sample location (SD-27), the pesticide heptachlor epoxide was detected in exceedance of the PEC criteria at the 6-13 inch depth, similar to the elevated levels of PCBs detected at that location. Other analytes detected above the TEC criteria include DDT and derivatives, endrin, and lindane (gamma-BHC).

PAHs - Various PAHs were detected at levels above their TEC criteria at 22 of the 42 sampling locations, including upstream, adjacent to, and downstream of the Elm Street Area.

Metals - Arsenic, cadmium, chromium, and lead were each detected in at least one sample at a concentration in excess of its TEC criteria. Lead exceeded the TEC at sites upstream, adjacent to, and downstream of the Elm Street Area. Arsenic and cadmium were detected above the TEC at upstream and downstream sites, while chromium was detected above the TEC at only one sample location (T-6-8) below the Elm Street Area. None of the detections for metals exceeded the PEC.

5.4 2007 Investigations

In June 2007, the USEPA and USACE collected additional sediment and river bank soil samples from the Souhegan River study area following a significant flooding event in April of that year. Nine (9) sediment and 14 river bank soil locations were sampled as shown on Figure 5-5. Samples were collected at 0-6 inches at all locations and 6-12 inches at several locations. Surface soil samples were all collected within the 0-12 inch zone. The purpose of the investigation was to obtain supplemental data to support the boundary of the contamination and to determine if the significant flooding event in April 2007 had re-deposited contaminated sediments onto the river banks (USACE, 2007).

The samples were analyzed for PCB Aroclors and congeners and the results are presented in Table 5-10. The results of the sediment sample analysis indicate exceedances of the TEC criteria for PCBs at two sampling locations adjacent to the Elm Street Area (SD-36 and SD-42). Samples were also collected from a site just upstream of Goldman Dam (SD-35), similar to the sample collected in 2006. The 2007 results suggest a similar pattern of PCB contamination immediately upstream of the Goldman Dam. The top layer (0-6 inches) was relatively clean having a total PCBs concentration of 0.029 mg/kg. The deeper sediment (6-10 inches) had a total PCBs concentration of 0.69 mg/kg, which is slightly above the PEC criteria.

Four (4) surface soil sampling locations had detections of total PCBs in excess of the TEC; however, none of the samples exceeded the PEC. The maximum surface soil concentration of PCBs was 0.380 mg/kg at sample location SS-14.

5.5 Exposure Area Determination

The previous risk assessments identified elevated risk quotients for benthic and pelagic biota and upper trophic level receptors from exposure to polychlorinated biphenyls (PCBs) and pesticides (ADL, 1994a; 1994b; 1997). PCBs also contributed the majority of potential cancer risk to humans from Souhegan River sediments (ADL, 1994a). Based on these prior findings, the focus of the supplemental BHHERA was on PCB contamination (Battelle, 2011). The specific objectives of the BHHERA were as follows:

- Review all data collected to understand the nature and extent of PCB contamination in the Souhegan River impacted or potentially impacted by OU1;

- Use recently collected surface sediment (0-6 inch depth only) and fish tissue data (2004, 2006, and 2007) to quantitatively evaluate the risks to human health and ecological receptors as a result of their direct contact with these areas of the river and ingestion of fish tissue caught from these areas; and,
- Qualitatively review surface water, soil, and subsurface sediment data to assess the potential for risks to human and ecological receptors from exposures to these media.

Samples for the investigations of the Souhegan River study area were collected from a portion of the Souhegan River stretching from approximately 2,000 feet upstream from the northern boundary of the Elm Street Area to 2,400 feet downstream from the Elm Street Area to the Goldman Dam. For the purpose of the BHHERA, these samples were assigned to Areas A, B, and C depending on whether they were adjacent to, downstream from, or upstream from the Elm Street Area, respectively (Figure 5-1).

Because of the inability to distinguish between Areas A and B both physically and based on sediment chemical concentrations in the surface sediment (0-6 inch depth), these two areas were combined for the BHHERA (Battelle, 2011). On a smaller spatial scale and because of geographic patterns in sediment chemical concentrations, a subset of samples within Area A was assessed separately for risks to human and ecological receptors. A preliminary review of the data for total PCBs that were collected in 2006 and 2007 indicated a high variability in concentrations of total PCBs, TOC, and grain size in sediment samples collected between the Elm Street Area and the Goldman Dam. As such, there was no qualitative difference in the range of sediment concentrations in the surface samples (0-6 inch depth) detected in the two areas, which made it difficult to draw a boundary line separating the two areas and determine which areas to place the 10 samples into that were taken between Areas A and B (Sample IDs: T-11-7-A, DEP-5, T-10-6, DEP-4, T-9-4, T-9-7-A, T-8-7-A, T-7-8, T-6-2, and T-6-8). There are also no physical barriers between Areas A and B. Because the two areas are not physically or ecologically independent of each other, no justification could be made for drawing a distinct line between the m. Therefore, for the purposes of the BHHERA, sampling Areas A and B were combined into a single exposure area (Area A/B). In lieu of defining Areas A and B as being separate, a statistical outlier analysis was done to identify a Hot Spot Area adjacent to the Elm Street Area where PCB concentrations are significantly elevated.

A subset of elevated surface sediment PCB concentrations immediately within the vicinity of the Elm Street Area was evaluated in addition to the entire Area A/B in both the human health and ecological risk assessments. This area includes the Rope Swing Area used recreationally by human receptors and was defined by samples with elevated PCB concentrations that are statistically significantly different from nearby samples based on outlier tests at the 0.05 significance level. A total of 17 samples were determined to be significantly statistically different (elevated concentrations) and an additional nine samples (not statistically elevated) were located spatially within the Hot Spot Area. In total, 26 samples were included in the analysis of the Rope Swing/Hot Spot Area (Figure 5-6). Although one surface sediment sample in Area B (T-2-8) was statistically significantly different, the elevated PCB concentration (0.5 µg/kg) was isolated to this one sample in Area B and, therefore, was not included in the Hot Spot Area in Area A. Additional surface sediment samples collected in Area B showed much lower PCB concentrations and the elevated PCB concentration in this one sample in Area B was deemed an outlier.

The five samples collected in 2006 upstream from the Elm Street Area (above the footbridge) are considered to be un-influenced by historic activities associated with the Fletcher's Paint Superfund Site and grouped into Area C as background locations.

In summary, exposure areas for the BHHERA were grouped as follows:

- A group of samples from Areas A and B into one exposure area (Area A/B);
- A subset of samples with statistically elevated PCB concentrations in river sediment within Area A in the immediate vicinity of Elm Street, coincident with an area of unacceptable human exposure (Rope Swing/Hot Spot Area); and
- Area C (i.e., background locations) consisting of sample locations DEP-11, T-22-3, DEP-10, T-20-7-A, and DEP-8.

6.0 SUMMARY OF SOUHEGAN RIVER RISK ASSESSMENTS

This section presents a summary of the human health and ecological risks for the Souhegan River as presented in the Final Supplemental BHHRA (Battelle, 2011). Additional details regarding the risk assessments are presented in Final Supplemental BHHRA (Battelle, 2011).

6.1 Human Health Risks

The purpose of the Baseline HHRA for the Souhegan River was to estimate the potential risks (cancer and noncancer) associated with human contact with contamination, principally PCBs, in the Souhegan River in the vicinity of the of the Elm Street Area for current and reasonably anticipated future uses.

For the purposes of the Baseline HHRA, the Souhegan River portion of OU2 was divided into three exposure areas of concern:

- **Area A/B** - Area A is directly across from the Elm Street Area, downstream of the footbridge at Keyes Field; Area B is located downstream of the Elm Street Area to the Goldman Dam impoundment;
- **Area C** - background area, located upstream of Area A; and
- **Rope Swing/Hot Spot Area** - An area of statistically elevated PCB concentrations in Area A that includes a deep pool across from the Elm Street Area where a rope swing is located.

Only exposures to surficial (i.e., 0-6 inch below ground surface) sediments and fish tissue were quantitatively evaluated. The exposure scenarios evaluated consisted of child, adult, and adolescent recreational users engaged in sediment contact activities that included angling/wading, swimming, rope swing use, and ingesting fish (specifically the fillet portion of redbreast sunfish) caught from the Souhegan River. Exposures to other media (i.e., subsurface sediment, bank soil, sandbar soil, and surface water) were qualitatively evaluated.

With the exception of cancer risk from arsenic due to direct sediment contact exposures, only PCB-related (e.g., total PCB, dioxin-like PCB toxic equivalency (TEQ), and non-dioxin-like PCB plus dioxin-like PCB) exposures resulted in cancer risks greater than 1E-06 and HIs greater than one and therefore exceeded EPA's risk criteria. Given that arsenic cancer risks estimated for Area C were greater than those for Area A/B, it is likely that risks from arsenic are due to background conditions or can be attributed to an upstream source.

RME cancer risks from PCB-related COPCs in the vicinity of the Elm Street Area (i.e., Areas A/B and Rope Swing / Hot Spot Area) are summarized below.

COPC	PCB-related Cancer Risks – RME Case			
	Sediment Contact (0-6 inches bgs)			Fish Consumer
	Angler/Wader	Swimmer	Rope Swinger	
Total PCBs	2E-06 to 4E-06	4E-06 to 6E-06	1E-06 to 4E-06	2E-04 to 3E-04
TEQ	1E-07	1E-07	3E-06	2E-05
Non-dioxin-like PCBs plus dioxin-like PCBs	3E-06	6E-06	7E-06	4E-04

RME HIs from total PCBs in the vicinity of the Elm Street Area (i.e., Area A/B and Rope Swing / Hot Spot Area) are summarized below.

Receptor	Total PCB Hazard Quotients/Indices – RME Case			
	Sediment Contact (0-6 inches bgs)			Fish Consumer
	Angler/Wader	Swimmer	Rope Swinger	
Child	0.3 to 0.5	0.3 to 0.5	NE	20 to 31
Adolescent	NE	NE	0.3 to 0.8	NE
Adult	0.1 to 0.2	0.2 to 0.3	NE	10 to 15

For both cancer risks and noncancer hazards, subtracting background risk contributions from Area A/B and Rope Swing Area risks would result in a negligible change in the risk results.

Central tendency estimate (CTE) results followed the same patterns as the RME, but direct sediment contact cancer risks were all below 1E-06 and total HIs for the child and adult were less than one. For fish ingestion, the CTE total cancer risks for total PCBs ranged from 4E-05 to 6E-05, for TEQ was 3E-06, and for non-dioxin-like PCBs plus dioxin-like PCB congeners the cancer risk was 7E-05. The total PCB HQs for the child and adult Fish Consumers ranged from 6.1 to 9.4 for the child and from 3.1 to 4.8 for the adult.

Qualitative evaluations for PCB exposures in Area A/B for bank soil, sandbar soil, and surface water indicate that it is unlikely that direct contact exposure to these media would lead to unacceptable adverse health effects from PCB-related COPCs.

A qualitative analysis of the subsurface sediment (intervals ranging from 6-56 inches bgs) was performed to account for the possibility that scouring events expose the underlying sediment. Maximum detected concentrations of PCB-related COPC concentrations at depth were equal to or greater than the surficial sediment exposure point concentrations (EPCs) used in this risk assessment. The table below summarizes the potential cancer risks and noncancer health hazards from the maximum concentrations detected in the 6-56 inch depth interval. The maximum PCB detection occurred in the six to 14 inch interval, resulting in a cancer risk to the Swimmer of greater than 1E-04.

COPC	PCB-related RME Cancer Risks for Sediment at Depth (6-56 inches bgs)	
	Total Cancer Risk	HI (child/adult where applicable)
Area A/B – Swimmer		
Total PCBs	1E-05 to 2E-04	19/12
TEQ	6E-07 to 1E-05	---
Non-dioxin-like PCBs plus dioxin-like PCBs	1E-05 to 2E-04	---
Rope Swing Area – Rope Swinger		
Total PCBs	5E-05	12
TEQ	3E-06	---
Non-dioxin-like PCBs plus dioxin-like PCBs	6E-05	---

In summary, the findings of the human health risk assessment are that:

- 1) cancer risks and hazard quotients from the consumption of recreationally caught fish are higher than EPA's risk criteria of 1×10^{-6} to 1×10^{-4} excess cancer risks and a hazard index of 1 for non-cancer risks;
- 2) cancer risks from the recreational scenarios involving direct contact with surface sediments (i.e., angling, wading, swimming, and rope swinging contact with sediments 0-6 inches bgs) are higher than EPA cancer risk criteria, but have a non-cancer risk less than a hazard index of one, and
- 3) should subsurface sediments become exposed (e.g., due to erosion), cancer risks and hazard quotients from the recreational scenarios involving direct contact with subsurface sediment (6-56 inches bgs) may exceed EPA risk criteria.

6.2 Ecological Risks

Risks to ecological receptors including benthic invertebrates, fish, and upper-trophic level wildlife receptors were evaluated in this supplemental baseline ecological risk assessment (BERA). Fish were represented by white sucker, redbreast sunfish, and salmon fry; upper-trophic level wildlife receptors were represented by the belted kingfisher, mink, and green heron.

Despite the detection of a few pesticides with elevated concentrations in surface water during the 1990s, the surface water ingestion pathway does not likely represent a substantial exposure pathway to contaminants related to Fletcher's Paint Superfund Site for any receptors evaluated. Rather, the major pathways for ecological receptors are direct exposure to sediment (benthic invertebrates) and the sediment and fish tissue ingestion pathways (fish and wildlife), with a significant portion of observed risk to wildlife receptors coming from the latter. In addition, there is a low risk from exposure to bank soils that may be inundated with flooded river water during high flow events. In the events of potential sediment scouring, subsurface sediments could pose the potential for significant ecological risk if receptors are exposed to these sediments.

Ecological risks were evaluated using surface sediment and fish tissue data collected from two areas potentially affected by contamination (Areas A and B) and one background area (Area C). In addition, a Hot Spot Area was identified near the former source of PCBs to the Souhegan River, where a statistical analysis indicated that PCB concentrations were significantly elevated compared to nearby samples. Surface sediment from the top six inches was quantitatively evaluated in the supplemental BERA; subsurface sediment (between six and 56 inches in depth) was qualitatively evaluated.

Several data gaps were identified for this assessment, including limited available data particularly for PCB congeners. The risk analysis conducted using the available measured PCB (including limited congener) data was supplemented using a regression-based approach to estimate congener concentrations. Although improving spatial coverage for determining exposures, the supplemental approach was determined to introduce unacceptable uncertainty to the assessment and was provided in the BHHERA (Battelle, 2011) for comparison purposes only. Furthermore, exposure areas A and B were combined into one exposure area (Area A/B) for sample grouping and exposure calculations because these areas were determined to represent a single ecological exposure area, and the high variability in the data prevented delineation of the boundary between the two areas based on sediment chemical and physical characteristics. The Hot Spot Area, located within Area A, was evaluated as a second exposure area for the ecological risk assessment.

PCBs, which are the primary COPCs, have the potential to bioaccumulate and be transferred through the aquatic food web to upper trophic level receptors. Therefore, PCBs in sediment may present an unacceptable risk to wildlife, as well as fish and invertebrates, from multiple exposure routes. The potential for PCB chemicals to bioaccumulate in fish tissue from sediment, measured as the normalized ratio of fish tissue concentrations to sediment concentrations and represented by a biota-sediment accumulation factor (BSAF), was determined to be lower than other sites with PCB contamination.

Overall, risks to benthic invertebrates are mainly attributed to PCBs in surface sediment, followed by pesticides. Based on HQs greater than 1.0, indicating a potential for adverse effects, there is risk to benthic invertebrates from exposure to mean and maximum concentrations of individual COPCs in surface sediment for the following chemicals:

COPC	HQ for maximum concentration	Maximum Concentration (mg/kg)			HQ for mean concentration
		Value	Location	Area	
Lead	2.3	81	T-2-8	A/B	0.24
Silver	1.7	1.7	DEP-4	A/B	1.2
Arsenic	1.4	13	DEP-4	A/B	0.49
Cadmium	9.6	9.5	DEP-4	A/B	0.39
Total PCB congeners	180	11	SED-02A	Hot Spot	19
Alpha-BHC	1.5	0.0091	T-15-6	Hot Spot	0.78
Beta-BHC	12	0.061	T-15-6	Hot Spot	1.2
Gamma-BHC	5.1	0.012	T-15-6	Hot Spot	0.88
Endrin	4.1	0.0091	SD-27	Hot Spot	4.0

COPC	HQ for maximum concentration	Maximum Concentration (mg/kg)			HQ for mean concentration
		Value	Location	Area	
4,4'-DDD	13	0.065	DEP-5	A/B	2.1
4,4'- DDE	6.3	0.020	T-15-6	Hot Spot	0.90
4,4'- DDT	16	0.066	DEP-5	A/B	2.6
Endosulfan I	2.7	0.0079	T-15-6	Hot Spot	0.48
Endosulfan II	1.9	0.026	T-15-6	Hot Spot	0.65
HPAH	6.8	11	DEP-5	A/B	0.74
LPAH	3.6	2.0	DEP-5	A/B	1.3

Risks to white sucker, based on CBRs, are attributed mainly to metals in sediment, followed by PCBs. Risks to redbreast sunfish are also attributed primarily to metals, with the greatest risk to sunfish being from mercury body burdens, again followed by PCBs. Risks to invertebrates and fish associated with exposure to PCBs are relatively similar in both the Hot Spot Area and in Area A/B, most likely because of the occurrence of sediment samples without elevated PCB concentrations within the Hot Spot Area for the assessment of risks to benthic invertebrates and the mobility of fish that would expose these receptors to lower contaminant concentration outside of the Hot Spot Area.

Risks to the upper trophic-level wildlife receptors are attributed to PCBs, including both total PCBs and dioxin-like PCB congeners (i.e., TEQs) mainly from exposure to these COPCs in fish tissue. The assessment of risks to wildlife from exposure to PCBs in the tissue of benthic-dwelling fish species, represented by white sucker, was considered most appropriate for this evaluation because whole body data were available for white sucker. Risks from exposure to white sucker in Area A/B, expressed as HQs, were identified for both the no observed adverse effects levels (NOAELs) and lowest observed adverse effects level (LOAELs) and showed low to moderate risks as follows:

Ecological Risks Related to Ingestion of White Sucker within Area A/BCOPC	Belted Kingfisher		Green Heron		Mink	
	LOAEL-Based HQ	NOAEL-Based HQ	LOAEL-Based HQ	NOAEL-Based HQ	LOAEL-Based HQ	NOAEL-Based HQ
Total PCB (Aroclor)	8.1E+00	1.0E+01	8.1E+00	1.0E+01	4.4E+01	5.3E+01
Total PCB (Congener)	7.0E+00	8.7E+00	6.8E+00	8.5E+00	3.8E+01	4.5E+01
PCB_TEQ_BIRD	6.6E+00	6.6E+01	7.5E+00	7.5E+01	NA	NA
PCB_TEQ_MAMMAL	NA	NA	NA	NA	5.9E+00	1.6E+02

The greatest PCB risk was observed for piscivorous mammals, represented by the mink with HQs two (2) to three (3) orders-of-magnitude above unity. Next greatest were PCB risks to avian receptors which were two (2) orders-of-magnitude above unity.

The supplemental BERA found that exposure to PCBs in Area A/B for benthic invertebrates, fish, and wildlife resulted in substantially higher risks relative to those estimated for the background area (Area C). Although risks to mink from exposure to PCBs in white sucker in background Area C were found to be slightly higher than Area A/B, this anomalous finding is due to the presence of two potent dioxin-like PCB congeners (i.e., large TEQ) that were uniquely detected in a single fish tissue sample from background Area C. These compounds appear to be unrelated to the Fletcher's Paint Superfund Site as they were not detected in surface sediment samples during this same sampling event conducted in 2006. Assessment of exposures to COPCs in redbreast sunfish indicated that risk to mink from PCB exposures in Area A/B is greater than exposure risk for background Area C.

A qualitative evaluation of COPC concentrations in surface water, river bank soil, and subsurface sediment indicated a low potential for adverse effects from exposure to metals in surface water, a low potential for adverse effects on benthic invertebrates from exposure to PCBs in river bank soil, and elevated concentrations of PCBs in subsurface sediment in the Hot Spot Area. Because of the low HQs (<10) and likelihood that COPCs in surface water and eroded river bank soil will be diluted within the river, risks from exposure to these media is considered negligible. However, storm events, flooding, and winter ice flows could create sediment instability problems and result in scouring of the river bed, exposing sediment with higher concentrations of PCBs than surface sediment and elevating exposures and risks to ecological receptors.

6.3 General Conclusions

There is unacceptable risk to human and ecological receptors from exposure to PCBs in Souhegan River sediments within Area A/B of the Fletcher's Paint Superfund Site. There is risk to human receptors from direct contact with sediments and fish ingestion, with fish ingestion risks being of particular concern. There is also risk to benthic invertebrates from exposure to metals and pesticides in sediment. The observed risk is unacceptable relative to background Area C. A PCB Hot Spot Area was identified within Area A/B of the Souhegan River study area where there are statistically significant elevated concentrations of PCBs. Within this area, there are also elevated concentrations of PCBs in subsurface sediments that could pose greater risk to human and ecological receptors if storm and flood events, or winter ice flows, expose these deeper sediment layers. Consequently, the PCB Hot Spot Area could become dispersed and provide a continuing source of bioavailable PCBs to the Souhegan River if not remediated.

7.0 SUMMARY AND CONCLUSIONS

This section summarizes the investigations and associated risks to human health and the environment associated with the Keyes Field groundwater and Souhegan River located in the vicinity of the Elm Street Area, which comprises OU2 of the Fletcher's Paint Superfund Site.

7.1 Keyes Field Groundwater

Groundwater investigations in the vicinity of Keyes Field were initiated as a result of the 1984 closure of the Keyes Well. The Keyes Well, located approximately 800 feet northwest of the Elm Street Area, operated from 1972 to 1984. Subsequent to the closure of the Keyes Well, numerous groundwater investigations have been conducted in and around Keyes Field. The initial investigations determined that the most likely sources of contamination found in the Keyes Well were the nearby gasoline stations and Fletcher's Paint Superfund Site.

Groundwater flow in the vicinity of Keyes Field is in a north-northeast direction across Keyes Field and discharges into the Souhegan River. From the Mill Street Area, groundwater flows north toward Elm Street and then north-northwest toward the Souhegan River. Under current, non pumping conditions, Keyes Field is located hydraulically upgradient of OU1 and downgradient of the Xtramart gasoline station located on Elm Street (Figure 1-1).

Early investigations of Keyes Field groundwater conducted as part of OU1 found elevated concentrations of VOCs (primarily BTEX) in several of the Keyes Field wells. The highest concentrations of VOCs were detected along the southern edge of Keyes Field on the northern side of Elm Street across from the gasoline station (currently Xtramart). The OU1 RI (ADL, 1994a) concluded that the VOC contamination observed in groundwater beneath Keyes Field appeared to have originated from a source near the intersection of Elm and West Streets and migrated through the groundwater in a northeasterly direction across Keyes Field toward the Souhegan River.

The Xtramart has operated as a gasoline station since 1956 when the property was owned by the Atlantic Richfield Company. The property has been regulated by the NHDES since 1994. Numerous subsurface investigations, groundwater monitoring events, and field observations have been completed to determine the extent of contamination in soil and groundwater. An SVE/AS remediation system has been in operation at the Xtramart since May 2007. Groundwater monitoring of the Xtramart well network was routinely conducted starting in 1996. Elevated levels of BTEX and MTBE that were detected in wells along the southern edge of Keyes Field for the first several years have declined significantly over the last seven years.

Supplemental groundwater monitoring has been conducted at Keyes Field by GE and USEPA over the past several years. Significant results from these sampling events include the detection of MTBE at a concentration of 49 µg/L in KW01D (50 µg/L in the duplicate sample), which exceeds the NHDES standard for MTBE of 13 µg/L. BTEX has not been detected in any of the on-site wells at Keyes Field in the past three years.

The quantitative HHRA performed relative to potential exposures to the on-site groundwater at Keyes Field focused on a future Park Worker, a future Park User, and hypothetical future Residents who could be exposed to the on-site groundwater as tapwater in a domestic setting if the Keyes Well were to be re-activated and the groundwater used to supply the public water system. The exposure scenarios evaluated for the future Park Worker and the future Park User assumed that all water used at the park for all needs (e.g., drinking, irrigation, washing, filling the pool) would come from the on-site groundwater. This included potential ingestion (i.e., drinking) as well as potential dermal absorption exposures due to direct contact with the groundwater during these uses. It must be emphasized that the water currently available at the park is municipally supplied from other sources (i.e., not the on-site groundwater). The calculated risks for the future Park Worker and the future Park User under these potential future exposure scenarios did not exceed the USEPA cancer risk reference range or non-cancer thresholds. The calculated risks for the hypothetical future Resident (adult and child) under the scenario of the on-site groundwater as a municipal water supply did exceed both the USEPA cancer risk reference range and the non-cancer HI threshold. However, the exceedance of the USEPA cancer risk reference range was almost entirely due to a one time detection of arsenic at a concentration of 11 µg/L, just over the detection limit and MCL standard of 10 µg/L. This detection of arsenic was determined to likely be due to

the naturally occurring arsenic in the area's bedrock. The only other compound in the on-site groundwater that contributed to any significant degree to the calculated risks was MTBE. However, MTBE was only detected in one well in 2007 and was very likely due to upgradient off-site sources that are currently being addressed under NHDES regulations. As such, the MTBE is not indicated to be due to any release from the Fletcher's Paint Superfund Site and is not expected to pose a long-term concern if upgradient sources continue to be addressed and monitored.

The screening level risk assessment performed relative to the upgradient groundwater revealed that this groundwater has or is likely to have contaminant levels that exceed thresholds for a public drinking water supply. Characterizations of the hydraulic conductivities in the overburden and in the underlying bedrock (USGS, 1996) suggest that a cone of depression would likely be created if the Keyes Well were to be re-activated to extract water for use as a public supply. This pumping would be likely, based on past experience, to draw groundwater from these upgradient locations and re-contaminate the on-site groundwater. A Keyes Well re-activation scenario should not be considered until the various sources of the upgradient contamination are identified and remediated. It is assumed, given the ongoing remediation and groundwater monitoring efforts associated with the Xtramart site under the NHDES regulations (NHDES Site No. 199404027), that the contamination associated with the Xtramart property is unlikely to impact Keyes Field groundwater in the future if the Keyes Well remains inactive until this off-site source has been remediated.

The HHRA for the Keyes Field groundwater suggests that there are no current human health risks related to the on-site Keyes Field groundwater and hypothetical future risks are related to naturally occurring arsenic and potential migration of off-site contamination into Keyes Field should the Keyes Well be returned to service. The hypothetical future risks can be addressed by preventing the installation of new wells and use of the Keyes Well until these off-site sources are remediated or otherwise addressed. In addition, ongoing groundwater monitoring programs associated with historic releases at Elm Street and Mill Street Areas (OU1) and the Xtramart property will continue to be conducted to assess contaminant migration and concentration trends.

7.2 Souhegan River

Multiple investigations of the Souhegan River adjacent and downstream of the Elm Street Area have been conducted and a supplemental BHHRA (Battelle, 2011) was prepared to incorporate all available data and update the risk assessment to human health and the environment.

The supplemental BHHRA concluded that there is unacceptable risk to human and ecological receptors from exposure to PCBs in Souhegan River sediments within Area A/B of the Fletcher's Paint Superfund Site. There is risk to human receptors from direct contact with sediments and fish ingestion, with fish ingestion risks being of particular concern. There is also risk to benthic invertebrates from exposure to metals and pesticides in sediment. The observed risk is unacceptable in Area A/B relative to background Area C located upstream from the Elm Street Area. A PCB Hot Spot Area was identified within Area A/B of the Souhegan River study area where there are statistically significant elevated concentrations of PCBs. Within the PCB Hot Spot Area there are also elevated concentrations of PCBs in sub-surface sediments that could pose greater risk to human and ecological receptors if storm and flood events expose these deeper sediment layers. Consequently, the PCB Hot Spot Area could provide a continuing source of bioavailable PCBs to the Souhegan River if not remediated.

A Focused Feasibility Study (FFS) is proposed to be conducted for the Souhegan River study area to develop an appropriate range of remedial alternatives for detailed analysis to address unacceptable risks posed to human health and the environment due to contamination associated with the Fletcher's Paint Superfund Site.

8.0 REFERENCES

- ADL (Arthur D. Little, Inc.). 1994a. Final Remedial Investigation for Fletcher's Paint Site, Revision No. 1. Volumes I through IV. Prepared for USEPA Region 1. July 1, 1994.
- ADL. 1994b. Final Report for Preliminary Ecological Assessment at the Fletcher's Paint Site, Milford, NH, Phase IA, Technical Memorandum Supplement. Prepared for USEPA Region 1. pp. 156. March 15, 1994.
- ADL. 1997. Fletcher's Paint Ecological Risk Assessment for the Souhegan River. Technical Memorandum. Submitted to USEPA Region 1. November 1997.
- ARCADIS. 2006. Souhegan River Supplemental Investigation Work Plan. Prepared for General Electric Company Albany, New York. May 19, 2006.
- ARCADIS. 2007. Souhegan River Supplemental Investigation Data Summary Report. Fletcher's Paint Works and Storage Facility Superfund Site - Operable Unit 2 Milford, New Hampshire. Prepared for: General Electric Company Albany, New York. February 12, 2007.
- ARCADIS. 2008a. Draft Institutional Controls and Access Restriction (IC/RA) Plan, Operable Unit 1 (OU1). Fletcher's Paint Works and Storage Facility Superfund Site – Operable Unit 1, Milford, New Hampshire. April 14, 2008.
- ARCADIS. 2008b. Environmental Monitoring Plan. Fletcher's Paint Works and Storage Facility Superfund Site – Operable Unit 1, Milford, New Hampshire. April 15, 2008.
- ARCADIS, 2011. Water Monitoring Report – January 2011, Fletcher's Paint Works and Storage Facility, Superfund Site – Operable Unit 1, Milford, New Hampshire. April 22, 2011.
- Ayotte, Joseph D., Nielsen, M.G., Robinson, G.R. Jr., and Moore, R.B., 1999. *Relation of Arsenic, Iron, and Manganese in Ground Water to Aquifer Type, Bedrock Lithogeochemistry, and Land Use in the New England Coastal Basins*. Water-Resources Investigations Report 99-4162. Written for the U.S.G.S.
- Battelle. 2007. Workplan for Supplemental Baseline Human Health and Ecological Risk Assessments, Fletcher's Paint Works and Storage Facility Superfund Site, Milford, NH. Prepared for US Army Corps of Engineers. November 1997.
- Battelle. 2011. Final Report Supplemental Baseline Human Health and Ecological Risk Assessments, Fletcher's Paint Works and Storage Facility Superfund Site, Milford, New Hampshire. Final. June 7, 2011.
- BBL. 2009. Pre-Design Report. Fletcher's Paint Works and Storage Facility Superfund Site, Operable Unit 1, Milford, NH. Prepared for General Electric Company. Revised April.
- CalEPA, 2009. *OEHHA Toxicity Criteria Database*. On-line database. <http://www.oehha.ca.gov/risk/chemicalDB/index.asp>. April 2009, Accessed November 2010.
- CEA (Corporate Environmental Advisors, Inc.), 2010a. Groundwater Management Permit Renewal Application Milford Xtramart. NHDES Site Number: 199404027. January 27, 2010.
- CEA, 2010b. Groundwater Annual Summary and Remedial Action Periodic Status Report, Drake Petroleum Company, Inc., Milford Xtramart. NHDES Site Number: 199404027. December 23, 2010.
- DOE, 2010. *Risk Assessment Information System (RAIS)*. On-line database. http://rais.ornl.gov/cgi-bin/tools/TOX_search?select=chem. Accessed November 2010.
- Gomez and Sullivan. 2011. Sediment Sampling Plan and Quality Assurance Project Plan, McLane Dam, Milford, NH. Prepared for the Town of Milford, NH. Revision 3. July 27.
- MacDonald, D. D., C. G. Ingersoll, and T. A. Berger. 2000. Development and evaluation of consensusbased sediment quality guidelines for freshwater ecosystems. *Arch. Environ. Contam. And Toxicol.* 39: 20-31.

Nashua Regional Planning Commission, 2006. Souhegan River Watershed Management Plan. Prepared with the assistance of a NH Department of Environmental Services Watershed Assistance Grant. March.

NHDES, 2010. Chapter Env-Dw 700 Water Quality: Standards, Monitoring, Treatment, Compliance, and Reporting, FP 2010-3, Adopted to be effective 05/10/10,
<http://des.nh.gov/organization/commissioner/legal/rulemaking/documents/env-dw701adptdstd.pdf>.

New Hampshire Office of Health Management, 1997. Health Consultation. Evaluation of Chemical Contamination of Fish from the Souhegan River Area of the Fletcher's Paint Storage Facility. Milford, NH. CERCLIS No. NHD981067614. Prepared by NH Office of Health Management, Bureau of Health Risk Assessment under a cooperative agreement with the ATSDR. December 10, 1997. Available at http://www.atsdr.cdc.gov/hac/pha/fletcher/fps_toc.html

Robinson, G.R. and J.D. Ayotte. 2007. *Rock-Bound Arsenic Influences Ground Water and Sediment Chemistry Throughout New England*. Open File Report 2007-1119. Written for the U.S.G.S.

Town of Milford. Website: <http://milfordnh.info/> updated 10/2007.

Town of Milford, 2010. Request for Proposals. Dam Removal and River Restoration Feasibility Study, McLane and Golman Dams, Souhegan River, Milford, NH. April.

USACE, 2007. Field Sampling Plan/Quality Assurance Project Plan Addendum for Fletcher's Paint Works and Storage Facility Superfund Site. June 2007.

USEPA, 1989. *Risk Assessment Guidance for Superfund (RAGS): Volume I - Human Health Evaluation Manual (Part A, Baseline Risk Assessment)*. Interim Final. Office of Emergency and Remedial Response. USEPA/540/1-89/002.

USEPA, 1991a. *Risk Assessment Guidance for Superfund (RAGS): Volume I - Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals)*. Interim. Office of Emergency and Remedial Response. USEPA/540/R-92/003.

USEPA, 1991b. *Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"*. Office of Solid Waste and Emergency Response, OSWER Directive 9285.6-03, March 25. Washington, D.C.

USEPA, 1992. *Guidance for Data Usability in Risk Assessment (Part A), Final*. Office of Solid Waste and Emergency Response, Washington, DC, Publication 9285.7-09A, April.

USEPA, 1997. *Exposure Factors Handbook*, Office of Research and Development, National Center for Environmental Assessment, USEPA, Washington, D.C. August.

USEPA. 1998. EPA Superfund Record of Decision. Fletcher's Paint Works and Storage EPA ID: NHD001079649 OU 01 Milford, NH 09/30/1998. EPA/ROD/R01-98/124.

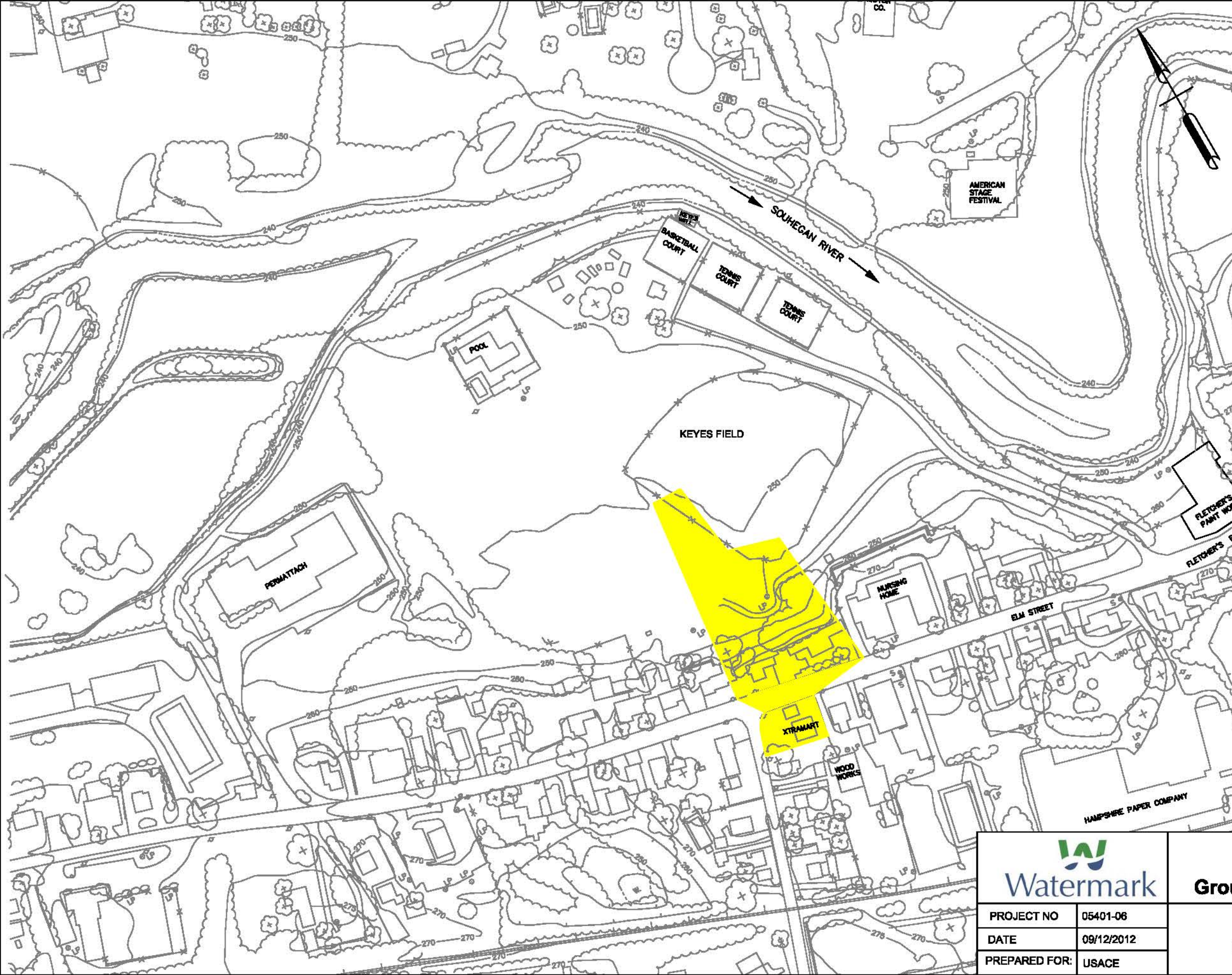
USEPA, 2001. *Risk Assessment Guidance for Superfund (RAGS) Volume 1 - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments) (Interim)*, Office of Solid Waste and Emergency Response, Washington, D.C. January.

USEPA, 2002. *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites*. OSWER 9355.4-24. December.

USEPA, 2003. *Human Health Toxicity Values in Superfund Risk Assessments*. Memorandum from Michael B. Cook (Director of Office of Superfund Remediation and Technology Innovation) to Superfund National Policy Managers. Office of Solid Waste and Emergency Response. December 5.

USEPA, 2004. *Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment)*. USEPA/540/R/99/005. OSWER 9285.7-02EP. Office of Superfund Remediation and Technology Innovation. July.

- USEPA. 2007a. Fletcher's Paint Works and Storage Superfund Site Website: <http://www.epa.gov/region01/pr/2002/oct/021025.html>. Last updated on September 18, 2007.
- USEPA, 2009a. Amended Record of Decision. Fletcher's Paint Works and Storage Facility Superfund Site, Milford, NH. June 15.
- USEPA, 2009b. *Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment)*. Final. USEPA/540/R/070/002. OSWER 9285.7-82. January.
- USEPA, 2010b. Regional Screening Level User's Guide, http://www.USEPA.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm, November.
- USEPA, 2010c. *Integrated Risk Information System (IRIS)*. Online database. <http://www.USEPA.gov/iris/>. Accessed November 2010.
- USEPA, 2010d. Regional Screening Level Risk-Based Concentration Table. December. http://www.USEPA.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm, May.
- USEPA, 2010e. Explanation of Significant Differences. Fletcher's Paint Works and Storage Facility Superfund Site. EPA Site ID No: NH001079649. Operable Unit 1. Milford, NH. September 20.
- USEPA, 2011. ProUCL Version 4.1.01, Office of Research and Development, USEPA/600/R-07/038.
- USGS, 1996. Analysis of Aquifer Tests to Determine Hydrologic and Water-Quality conditions in Stratified-Drift and Reverbed Sediments near a Former Municipal Well, Milford, New Hampshire. Water-Resources Investigations Report 96-4019.
- USGS, 2003. Arsenic Concentrations in Private Bedrock Wells in Southeastern New Hampshire. USGS Fact Sheet 051-03. June.
- Woods Hole Group Environmental Laboratories (WHGEL), 2005. Sediment Sampling on the Souhegan River in Support of Operable Unit II, Fletcher's Paint Works and Storage Facility Superfund Site, Milford, NH. Prepared for USACE, New England District. January.

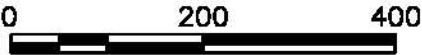


LEGEND

 PROPOSED GROUNDWATER MANAGEMENT ZONE

NOTES:

- 1. BASEMAP WAS PRODUCED BY ARTHUR D. LITTLE FOR THE PRELIMINARY ECOLOGICAL ASSESSMENT AT FLETCHER'S PAINT SITE, MILFORD, NEW HAMPSHIRE PHASE 1A TECHNICAL MEMORANDUM SUPPLEMENT, MARCH 15, 1994.
- 2. GROUNDWATER MANAGEMENT ZONE IS ESTIMATED BASED ON FIGURE 3 PROPOSED GROUNDWATER MANAGEMENT ZONE, FROM GROUNDWATER MANAGEMENT PERMIT RENEWAL APPLICATION MILFORD XTRAMART (CEA, 2010a).



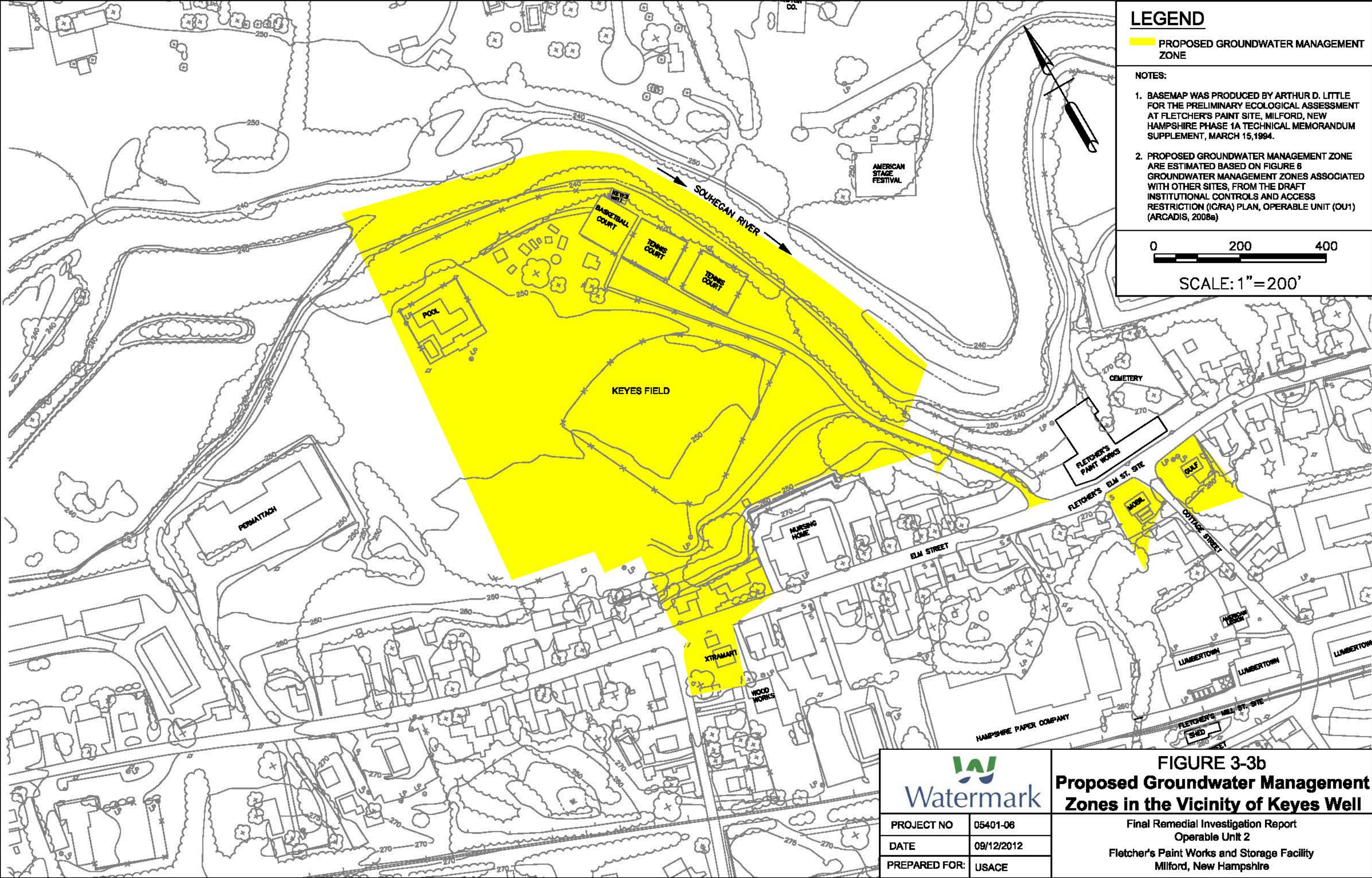
SCALE: 1"=200'



FIGURE 3-3a
Xtramart
Groundwater Management Zone

PROJECT NO	05401-06
DATE	09/12/2012
PREPARED FOR:	USACE

Final Remedial Investigation Report
Operable Unit 2
Fletcher's Paint Works and Storage Facility
Milford, New Hampshire





PROJECT NO 05401-06
DATE 09/12/2012
PREPARED FOR: USACE

FIGURE 3-3b
Proposed Groundwater Management Zones in the Vicinity of Keyes Well

Final Remedial Investigation Report
Operable Unit 2
Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

J:\01 Projects\05XXXX\05401-06 Fletcher's Paint\10. Drawings\RI Report\Figure 3-3 Groundwater Management Zone for Xtra Mart.dwg

TABLE 4-1
SELECTION OF EXPOSURE PATHWAYS
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Groundwater	Groundwater	On-Site Wells	None	Not Applicable	All Applicable	None	There are currently no complete exposure pathways relative to the on-site groundwater. Municipal water from other sources is available at the Site. Groundwater from the Site wells is not used on-site for any consumptive or non-consumptive purposes.
	Indoor Air	Indoor Air	On-Site Buildings	None	Not Applicable	Inhalation of Volatiles	None	There have been very few volatiles detected in the on-site groundwater and these have been detected at relatively low concentrations. There are currently no routinely occupied buildings on-site. The pool house is a building that people can enter, but it is only occupied for relatively short periods of time by park users and the pool staff. The building also is open and well-ventilated during the time the pool is open which would prevent the potential build-up of any volatiles that may be released from the groundwater if it were to be used on-site. As such, this exposure pathway is not currently complete.
Future	Groundwater	Groundwater	On-Site Wells	Hypothetical Resident	Adult (18+ yrs)	Ingestion	Quant	Given that municipal water is available at the Site, the scenario of a on-site well specifically to supply drinking and general use water to a future hypothetical resident is not currently occurring. However, the possibility of such a well being installed and its water used for drinking and other typical residential uses was considered as a conservative future exposure scenario.
						Dermal Absorption	Quant	
						Inhalation of Volatiles	Quant	
				Child (0-6 yrs)		Ingestion	Quant	
						Dermal Absorption	Quant	
						Inhalation of Volatiles	Quant	
			Park Worker	Adult (18+ yrs)		Ingestion	Quant	Given that municipal water is available at the Site, the scenario of the installation of an on-site well specifically to supply drinking and general use water to the park is considered to be very unlikely. However, the possibility of such a well being installed and its water used for these purposes was considered.
						Dermal Absorption	Quant	
						Inhalation of Volatiles	None	
			Park User	Adolescent (6-14 yrs)		Ingestion	Quant	Given that municipal water is available at the Site, the scenario of a on-site well specifically to supply drinking, cleaning and irrigation water to the park is considered to be very unlikely. However, the possibility of such a well being installed and its water used for drinking and filling the pool was considered.
						Dermal Absorption	Quant	
						Inhalation of Volatiles	None	
	Indoor Air	Indoor Air	On-Site Groundwater	Construction Worker	Adult (18+ yrs)	Incidental Ingestion	None	Any future additional construction at the site is expected to be slab-on-grade because of the proximity of the river and the potential for flooding. Since groundwater is encountered at a minimum of 3 - 4 feet below the ground surface or more, no prolonged exposure to the groundwater is anticipated for the construction worker.
						Dermal Absorption	None	
						Inhalation of Volatiles	None	
			Utility Worker	Adult (18+ yrs)		Incidental Ingestion	None	The site currently has underground water, sewer and irrigation lines. However, since groundwater is typically encountered at 3 - 4 feet below the ground surface or more, no prolonged exposure to the groundwater is anticipated for the utility worker.
						Dermal Absorption	None	
						Inhalation of Volatiles	None	
			On-Site Buildings	Hypothetical Resident	Adult (18+ yrs)	Inhalation of Volatiles (Vapor Intrusion)	None	Given the presence of only two (2) volatile constituents in the groundwater at very low concentrations, this pathway would be effectively incomplete even if an occupied residence were to be constructed on-site in the future.
					Child (0-6 yrs)	Inhalation of Volatiles (Vapor Intrusion)	None	
				Park Worker	Adult (18+ yrs)	Inhalation of Volatiles (Vapor Intrusion)	None	Given the presence of only 2 volatile constituents in the groundwater at very low concentrations, this pathway would be effectively incomplete if a routinely occupied building were to be constructed on-site in the future to be used by the park staff. The pool house is an existing building that people can enter, but it is only occupied for relatively short periods of time by park visitors and the pool staff. The building also is open and well-ventilated during the time the pool is open which would prevent the potential build-up of volatiles from the groundwater below.

TABLE 4-2.1
SUMMARY OF DATA CONSIDERED FOR THE HUMAN HEALTH RISK ASSESSMENT
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Year Sampling Date Sampling Group Well ID	2007			2008				2009				2010	
	Apr-07 EPA or CEA	Jul-07 GE	Oct-07 CEA or GE	Jan-08 GE	Apr-08 CEA or GE	Jul-08 GE	Oct-08 CEA or GE	Jan-09 GE	Apr-09 CEA or GE	Jul-09 GE	Sep/Oct-09 EPA or GE	Jan-10 GE	
ON-SITE DATA SET													
OW2	VOCs, BNAs, THg, MET, PCBs	Not Damaged; Believed to Not Have Been Sampled											
OW2P	VOCs, BNAs, THg, MET, PCBs	Not Damaged; Believed to Not Have Been Sampled											
KW01 D	VOCs, BNAs, THg, MET, PCBs	Damaged; Was Not Resampled											
KW01 S	VOCs, BNAs, THg, MET, PCBs	Damaged; Was Not Resampled											
KW02	Damaged; Believed to Not Have Been Sampled During This Time Frame												
KEYES WELL	VOCs, BNAs, THg, MET, PCBs	Not Damaged; Believed to Not Have Been Sampled										VOCs, MET	Was Not Sampled
MW05A	VOCs, BNAs, THg, MET, PCBs	VOCs, Mn, PCBs	VOCs, BNAs, MET, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	Was Not Sampled	Was Not Sampled	Was Not Sampled	VOCs, BNAs, MET, PCBs	Was Not Sampled	
MW05A D	VOCs, BNAs, THg, MET, PCBs	Believed to Not Have Been Sampled During This Time Frame										Was Not Sampled	
MW05BR	Was Not Sampled	VOCs, Mn, PCBs	VOCs, BNAs, MET, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	Was Not Sampled	Was Not Sampled	Was Not Sampled	VOCs, BNAs, MET, PCBs	Was Not Sampled	
MW06A	VOCs, BNAs, THg, MET, PCBs	Was Not Sampled	Was Not Sampled	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	Was Not Sampled	Was Not Sampled	Was Not Sampled	VOCs, BNAs, MET, PCBs	Was Not Sampled	
MW06B	VOCs, BNAs, THg, MET, PCBs	Was Not Sampled	Was Not Sampled	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	Was Not Sampled	Was Not Sampled	Was Not Sampled	VOCs, BNAs, MET, PCBs	Was Not Sampled	
OW3	Believed to Not Have Been Sampled During This Time Frame												
UP-GRADIENT DATA SET													
XM MW-11	Was Not Sampled	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	
MW18B	Was Not Sampled	VOCs, Mn, PCBs	VOCs, BNAs, MET, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, BNAs, MET, PCBs	VOCs, Mn, PCBs	
XM MW-10	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	
XM MW-13	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	VOCs	Was Not Sampled	
KW03 D	VOCs, BNAs, THg, MET, PCBs	Not Damaged; Believed to Not Have Been Sampled										VOCs, BNAs, MET, PCBs	Was Not Sampled
BACKGROUND WELL													
MW25B	Was Not Sampled	VOCs, Mn, PCBs	VOCs, BNAs, MET, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	VOCs, Mn, PCBs	Was Not Sampled	Was Not Sampled	Was Not Sampled	VOCs, BNAs, MET, PCBs	Was Not Sampled	

Footnotes:

CEA Corporate Environmental Advisors, Inc.
EPA U.S. Environmental Protection Agency
GE General Electric

VOCs = volatile organic compounds; BNAs = base/neutral/acid extractable semivolatle organic compound; THg = Total mercury; MET = metals; PCBs = polychlorinated biphenyls; Mn = manganese

The list of VOCs analyzed for in the EPA sampling is not the same as in the CEA sampling or the GE sampling.

TABLE 4-2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Final Remedial Investigation Report

Operable Unit 2, Fletcher's Paint Works and Storage Facility

Milford, New Hampshire

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration		Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (Qualifier)	Screening Toxicity Value (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion	
				(1)		(1)					(2)	(3)	(4)				(6)	
Groundwater (Unfiltered)	67-64-1	2-Propanone (Acetone)	2	J	4.2	J	ug/L	MW06B	2 / 37	1 - 5	4.2	-	2,200 (N)	-	-	N	BSV	
	1634-04-4	Methyl-tert-Butyl Ether (MTB	49		49		ug/L	KW01D	1 / 37	1.0	49	-	12 (C)	-	-	Y	ASV	
	117-81-7	Bis(2-ethylhexyl)phthalate (C	230		230		ug/L	MW06B	1 / 15	5-10	230	-	5 (C)	6	(7)	N	(11)	
	85-68-7	Butyl Benzyl phthalate	2	J	2	J	ug/L	MW05BR	1 / 15	5 - 9.7	2	-	35 (C)	-	-	N	BSV	
	84-74-2	Di-n-butylphthalate	0.29	J	0.43	J	ug/L	MW06A	2 / 15	5-10	0.43	-	370 (N)	-	-	N	BSV	
	84-66-2	Diethyl phthalate	0.54	J	0.54	J	ug/L	MW06B	1 / 15	4.7-10	0.54	-	2,900 (N)	-	-	N	BSV	
	7429-90-5	Aluminum	100	J	12,000		ug/L	KW01D	4 / 16	110 - 200	12,000	434	3,700 (N)	50 - 200	(9)	Y	ASV	
	7440-38-2	Arsenic	11		11		ug/L	KW01D	1 / 16	10	11	<10	0.045 (C)	10	(7)	Y	ASV	
	7440-39-3	Barium	8.9		59		ug/L	KW01D	8 / 16	15 - 20	59	19.9-51.1	730 (N)	2,000	(7)	N	BSV	
	7440-70-2	Calcium	4,600		39,500		ug/L	MW06A	16 / 16	-	39,500	10,600-17,900	-	-	-	N	NUT	
	7440-47-3	Chromium (Total) (5)	0.9	J	27		ug/L	KW01D	3 / 16	4 - 20	27	1.1	5,500 (N)	100	(7)	N	BSV	
	7440-50-8	Copper	21		21		ug/L	KW01D	1 / 16	10 - 20	21	1.6	150 (N)	1,300	(8)	N	BSV	
	7439-89-6	Iron	41		9,900		ug/L	KW01D	11 / 16	40 - 58	9,900	120-5,270	2,600 (N)	300	(9)	Y	ASV	
	7439-95-4	Magnesium	550		6,020		ug/L	MW06A	16 / 16	-	6,020	933-1460	-	-	-	N	NUT	
	7439-96-5	Manganese	0.90	J	460		ug/L	KW01D	14 / 36	15 - 20	460	11.4-136	88 (N)	50	(9)	Y	ASV	
	7440-09-7	Potassium	530		4,400		ug/L	MW06A	16 / 16	-	4,400	2470-4030	-	-	-	N	NUT	
	7440-23-5	Sodium	9,110		57,900		ug/L	MW06A	7 / 7	-	57,900	19,600-52,600	-	-	100,000-250,000	(10)	N	NUT
	7440-62-2	Vanadium	15		15		ug/L	KW01D	1 / 16	5 - 20	15	<5	18.0 (N)	-	-	N	BSV	
	7440-66-6	Zinc	1.9	J	38		ug/L	KW01D	6 / 16	10 - 60	38	10.5	1,100 (N)	5,000	(9)	N	BSV	

Footnotes:

= Not applicable or not available

(1) Qualifier Definitions: J=Analyte was positively identified

(2) The maximum detected concentration is the concentration used for screening. Screening was performed against the Screening Toxicity Value only - Background and ARARs values are shown only to provide additional context.

(3) Background Value consists of the range of detections from monitoring well MW25B.

(4) The Screening Toxicity Values are the EPA Regional Screening Levels for Tapwater corresponding to a carcinogenic risk goal of 1×10^{-6} and a Hazard Quotient of 0.1. N = noncarcinogenic health endpoint and C = cancer endpoint.

(5) The screening value for chromium (III) Insoluble Salts was used as a surrogate for chromium (Total) because there was no screening value for chromium (total) and the other potential surrogate, chromium (VI), is not associated with the site.

(6) Rationale Codes:

ASV - Above Screening Value

BSV - Below Screening Value

NUT - Essential human nutrient

(7) Safe Drinking Water Act MCL and NHDES Part Env-DW MCL

(8) SDWA Action Level

(9) SDWA Secondary Standard and NHDES Part Env-DW Secondary MCL

(10) NHDES Part Env-DW Secondary MCL

(11) The only detection of BEHP was less than 10 times the laboratory blank concentration. This detection is considered to be due to laboratory contamination.

Page 1 of 1

TABLE 4-3.1
EXPOSURE POINT CONCENTRATION SUMMARY
Final Remedial Investigation Report

Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean (1)	95% UCL Distribution	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Groundwater	Methyl-tert-Butyl Ether (MTBE)	ug/L	1.97	(5)	49	49.0	ug/L	Maximum	(2)
	Aluminum	ug/L	988	2540	12,000	2,540	ug/L	95% KM UCL-t	(3)
	Arsenic	ug/L	5.4	(5)	11	11.0	ug/L	Maximum	(2)
	Iron	ug/L	1,435	9084	9,900	9,084	ug/L	99% KM UCL-C	(4)
	Manganese	ug/L	31.68	58.11	460	58.11	ug/L	95% KM UCL-t	(3)

Footnotes:

(1) The Arithmetic Means for aluminum, iron and manganese were calculated by ProUCL using the KM method due to the high proportion of non-detect results for these constituents.

The Arithmetic Mean EPC for MTBE and arsenic were calculated using the KM method due to the high proportion of non-detect results.

99% KM UCL-C = KM Method UCL based on Chebyshev inequality using sample mean and standard deviation

EPC Rationale:

- (2) There was only one detection of the chemical. It is presented here as the maximum concentration, and was used as the EPC.
- (3) Non-parametric distribution. The 95% KM (t) UCL was used as the EPC.
- (4) Non-parametric distribution. The 99% KM (Chebyshev) UCL was used as the EPC.

TABLE 4-4.1 RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE

Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Final Remedial Investigation Report

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Park Worker	Adult (18+ yrs)	Groundwater	CW	Chemical Concentration in Groundwater	See Table 4-3.1	mg/L		CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Groundwater	1	L/day	(3)	$CW \cdot IR \cdot W \cdot EF \cdot ED$
				EF	Exposure Frequency	143	days/year	(5)	BW*AT
				ED	Exposure Duration	25	years	(8)	
				BW	Body Weight	70	kg	(1)	
				AT-C	Averaging Time-Cancer	25,550	days	(2)	
				AT-N	Averaging Time-Noncancer	9,125	days	(2)	
	Park User	Adolescent (6-14 yrs)	Groundwater	CW	Chemical Concentration in Groundwater	See Table 4-3.1	mg/L		CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Groundwater	0.2	L/day	(7)	$CW \cdot IR \cdot W \cdot EF \cdot ED$
				EF	Exposure Frequency	54	days/year	(10)	BW*AT
				ED	Exposure Duration	8	years	(7)	
				BW	Body Weight	35	kg	(14)	
				AT-C	Averaging Time-Cancer	25,550	days	(2)	
				AT-N	Averaging Time-Noncancer	2,920	days	(2)	
	Resident	Adult (18+ yrs)	Groundwater	CW	Chemical Concentration in Groundwater	See Table 4-3.1	mg/L		CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Groundwater	2	L/day	(1)	$CW \cdot IR \cdot W \cdot EF \cdot ED$
				EF	Exposure Frequency	350	days/year	(1)	BW*AT
				ED	Exposure Duration	30	years	(1)	
				BW	Body Weight	70	kg	(1)	
				AT-C	Averaging Time-Cancer	25,550	days	(2)	
				AT-N	Averaging Time-Noncancer	10,950	days	(2)	
		Child (0-6 yrs)	Groundwater	CW	Chemical Concentration in Groundwater	See Table 4-3.1	mg/L		CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Groundwater	1	L/day	(9)	$CW \cdot IR \cdot W \cdot EF \cdot ED$
				EF	Exposure Frequency	350	days/year	(1)	BW*AT
				ED	Exposure Duration	6	years	(1)	
				BW	Body Weight	15	kg	(1)	
				AT-C	Averaging Time-Cancer	25,550	days	(2)	
				AT-N	Averaging Time-Noncancer	2,190	days	(2)	

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal Absorption	Park Worker	Adult (18+ yrs)	Groundwater	DAevent	Absorbed dose per event	Calculated	mg/cm ² -event	See Table 4-4.3	DAD (mg/kg-day)= $\frac{DAevent \cdot EV \cdot SA \cdot EF \cdot ED}{BW \cdot AT}$
				CW	Chemical Concentration in Groundwater	See Table 4-3.1	mg/L		
				Kp	Permeability Constant	Chemical-Specific	cm/hr	See Table 4-4.2	where DAevent= organic compounds: if $tevent \leq t^*$: $CW \cdot 2 \cdot FA \cdot Kp \cdot CF2 \cdot \sqrt{(6 \cdot tevent \cdot tevent / \pi)}$ if $tevent > t^*$: $CW \cdot FA \cdot Kp \cdot CF2 \cdot [tevent / (1+B) + 2 \cdot tevent \cdot (1+3B+3B^2) / (1+B)^2]$ inorganic compounds: $CW \cdot Kp \cdot CF2 \cdot tevent$
				τ -event	Lag time per event	Chemical-Specific	hours/event	See Table 4-4.2	
				FA	Fraction Absorbed Water	Chemical-Specific	unitless	See Table 4-4.2	
				t-event	Event Duration	1.0	hours/event	(7)	
				τ^*	Time to Reach Steady-State	Calculated	hour	$2.4 \cdot \tau$ -event	
				B	Ratio of permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Calculated	unitless	$Kp \cdot \sqrt{(MW)} / 2.6$	
				MW	Molecular Weight	Chemical-Specific	g/mol	See Table 4-4.2	
				CF2	Conversion Factor 2	0.001	L/cm ³	(6)	
				EV	Event frequency	1	events/day	(7)	
				SA	Skin Surface Area Available for Contact	4,447	cm ²	(11)	
				EF	Exposure Frequency	143	days/year	(5)	
				ED	Exposure Duration	25	years	(8)	
				BW	Body Weight	70	kg	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				AT-N	Averaging Time (Non-cancer)	9,125	days	(2)	
Dermal Absorption	Park User	Adolescent (6-14 yrs)	Groundwater	DAevent	Absorbed dose per event	Calculated	mg/cm ² -event	See Table 4-4.4	DAD (mg/kg-day)= $\frac{DAevent \cdot EV \cdot SA \cdot EF \cdot ED}{BW \cdot AT}$
				CW	Chemical Concentration in Groundwater	See Table 4-3.1	mg/L		
				Kp	Permeability Constant	Chemical-Specific	cm/hr	See Table 4-4.2	where DAevent= organic compounds: if $tevent \leq t^*$: $CW \cdot 2 \cdot FA \cdot Kp \cdot CF2 \cdot \sqrt{(6 \cdot tevent \cdot tevent / \pi)}$ if $tevent > t^*$: $CW \cdot FA \cdot Kp \cdot CF2 \cdot [tevent / (1+B) + 2 \cdot tevent \cdot (1+3B+3B^2) / (1+B)^2]$ inorganic compounds: $CW \cdot Kp \cdot CF2 \cdot tevent$
				τ -event	Lag time per event	Chemical-Specific	hours/event	See Table 4-4.2	
				FA	Fraction Absorbed Water	Chemical-Specific	unitless	See Table 4-4.2	
				t-event	Event Duration	2	hours/event	(12)	
				τ^*	Time to Reach Steady-State	Calculated	hour	$2.4 \cdot \tau$ -event	
				B	Ratio of permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Calculated	unitless	$Kp \cdot \sqrt{(MW)} / 2.6$	
				MW	Molecular Weight	Chemical-Specific	g/mol	See Table 4-4.2	
				CF2	Conversion Factor 2	0.001	L/cm ³	(6)	
				EV	Event frequency	1	events/day	(7)	
				SA	Skin Surface Area Available for Contact	11,414	cm ²	(13)	
				EF	Exposure Frequency	30	days/year	(10)	
				ED	Exposure Duration	8	years	(7)	
				BW	Body Weight	35	kg	(14)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				AT-N	Averaging Time (Non-cancer)	2,920	days	(2)	

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal Absorption	Resident	Adult (18+ yrs)	Groundwater (Residential Use)	DAevent	Absorbed dose per event	Calculated	mg/cm ² -event	See Table 4-4.5	DAD (mg/kg-day)= $\frac{DAevent \cdot EV \cdot SA \cdot EF \cdot ED}{BW \cdot AT}$
				CW	Chemical Concentration in Groundwater	See Table 4-3.1	mg/L		
				Kp	Permeability Constant	Chemical-Specific	cm/hr	See Table 4-4.2	where DAevent= organic compounds: if $tevent \leq t^*$: $CW \cdot 2 \cdot FA \cdot Kp \cdot CF2 \cdot \sqrt{(6 \cdot tevent \cdot tevent / \pi)}$ if $tevent > t^*$: $CW \cdot FA \cdot Kp \cdot CF2 \cdot [tevent / (1+B) + 2 \cdot tevent \cdot (1+3B+3B^2) / (1+B)^2]$ inorganic compounds: $CW \cdot Kp \cdot CF2 \cdot tevent$
				τ -event	Lag time per event	Chemical-Specific	hours/event	See Table 4-4.2	
				FA	Fraction Absorbed Water	Chemical-Specific	unitless	See Table 4-4.2	
				t-event	Event Duration	0.25	hours/event	(4)	
				τ^*	Time to Reach Steady-State	Calculated	hour	$2.4 \cdot \tau$ -event	
				B	Ratio of permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Calculated	unitless	$Kp \cdot \sqrt{(MW)} / 2.6$	
				MW	Molecular Weight	Chemical-Specific	g/mol	See Table 4-4.2	
				CF2	Conversion Factor 2	0.001	L/cm ³	(6)	
				EV	Event frequency	1	events/day	(4)	
				SA	Skin Surface Area Available for Contact	18,000	cm ²	(4)	
				EF	Exposure Frequency	350	days/year	(1)	
				ED	Exposure Duration	30	years	(1)	
				BW	Body Weight	70	kg	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				AT-N	Averaging Time (Non-cancer)	10,950	days	(2)	
Dermal Absorption	Resident	Child (0-6 yrs)	Groundwater (Residential Use)	DAevent	Absorbed dose per event	Calculated	mg/cm ² -event	See Table 4-4.6	DAD (mg/kg-day)= $\frac{DAevent \cdot EV \cdot SA \cdot EF \cdot ED}{BW \cdot AT}$
				CW	Chemical Concentration in	See Table 4-3.1	mg/L		
				Kp	Permeability Constant	Chemical-Specific	cm/hr	See Table 4-4.2	where DAevent= organic compounds: if $tevent \leq t^*$: $CW \cdot 2 \cdot FA \cdot Kp \cdot CF2 \cdot \sqrt{(6 \cdot tevent \cdot tevent / \pi)}$ if $tevent > t^*$: $CW \cdot FA \cdot Kp \cdot CF2 \cdot [tevent / (1+B) + 2 \cdot tevent \cdot (1+3B+3B^2) / (1+B)^2]$ inorganic compounds: $CW \cdot Kp \cdot CF2 \cdot tevent$
				τ -event	Lag time per event	Chemical-Specific	hours/event	See Table 4-4.2	
				FA	Fraction Absorbed Water	Chemical-Specific	unitless	See Table 4-4.2	
				t-event	Event Duration	0.58	hours/event	(4)	
				τ^*	Time to Reach Steady-State	Calculated	hour	$2.4 \cdot \tau$ -event	
				B	Ratio of permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	Calculated	unitless	$Kp \cdot \sqrt{(MW)} / 2.6$	
				MW	Molecular Weight	Chemical-Specific	g/mol	See Table 4-4.2	
				CF2	Conversion Factor 2	0.001	L/cm ³	(6)	
				EV	Event frequency	1	events/day	(4)	
				SA	Skin Surface Area Available for Contact	6,600	cm ²	(4)	
				EF	Exposure Frequency	350	days/year	(1)	
				ED	Exposure Duration	6	years	(1)	
				BW	Body Weight	15	kg	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				AT-N	Averaging Time (Non-cancer)	2,190	days	(2)	

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult (18+ yrs)	Groundwater (Residential Use)	C _{GW}	Chemical Concentration in Groundwater	See Table 4-3.1	mg/m ³		EC (mg/m ³) = $C_{GW} \cdot K \cdot CF$
				K	Volatization Constant	0.0005	unitless	(15)	
				CF	Conversion Factor	1,000	L/m ³	(6)	
		Child (0-6 yrs)	Groundwater (Residential Use)	C _{GW}	Chemical Concentration in Groundwater	See Table 4-3.1	mg/m ³		EC (mg/m ³) = $C_{GW} \cdot K \cdot CF$
				K	Volatization Constant	0.0005	unitless	(15)	
				CF	Conversion Factor	1,000	L/m ³	(6)	

Footnotes:

- (1) EPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors." March 25. - Default values.
- (2) EPA, 1989. Risk Assessment Guidance for Superfund: Vol I - Human Health Evaluation Manual (Part A). - Value for non-carcinogenic effects is based on the ED and the value for carcinogenic effects is based on a 70 year lifetime.
- (3) EPA, 1991. Assumes adult worker will drink half of his/her daily water intake at work.
- (4) EPA, 2004. Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. September. Exhibit 3.2. - Value chosen for a showering or bathing scenario.
For adult, total 0.58 hr/day equals 0.25 hr/event spent showering and 0.33 hr/event spent in bathroom after showering. For child, total 1 hr/day equals 0.58 hr/event bathing and 0.42 hr/day spent in bathroom after bathing.
- (5) Based on a seasonally variable work schedule of 5 days/week in summer (13 weeks), 3 days/week in spring and fall (26 weeks), and 0 days/week in winter (13 weeks).
- (6) Required for proper units conversion.
- (7) Site-specific parameter.
- (8) EPA, 2002b. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. December. Exhibit 1-2, default value for non-residential (commercial/industrial) worker.
- (9) EPA, 2010. EPA Regional Screening Levels User's Guide. May
- (10) The exposure frequency (EF) for ingestion and dermal absorption for the park user are different. The ingestion EF represents the amount of groundwater drunk while at the park, whereas the dermal absorption EF represents the amount of time the park user spends swimming. Therefore, the ingestion EF is based on a park user drinking water while at the park three times a week during the open pool season of 10 weeks per year, and once every other week during the remaining six warm months of the year. The dermal absorption EF is based on a park user swimming three times a week during the open pool season of 10 weeks per year.
- (11) EPA, 2004. Calculated from the surface area of the hands, forearms, and lower legs for adults given in EPA, 2004. Risk Assessment Guidance for Superfund: Vol. 1 - Human Health Evaluation Manual (Part E: Supplemental Guidance for September. Exhibit C-1.
- (12) Assumes that the park user is in the pool for 2 hours a visit, and would be at the park for more than 2 hours per visit.
- (13) EPA, 2004. Risk Assessment Guidance for Superfund: Vol. 1 - Human Health Evaluation Manual (Part E: Supplemental Guidance for September. Exhibit C-1.
- (14) EPA, 1997. Table 7-3. Calculated from the average body weights of children age 6-14 yrs.
- (15) EPA, 2004. Risk Assessment Guidance for Superfund: Vol I - Human Health Evaluation Manual (Part B). Section 3.1.

TABLE 4-4.2
VALUES USED FOR ABSORBED DOSE CALCULATION
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Chemical of Potential Concern	Permeability Coefficient (1) Kp (cm/hr)	Lag Time Per Event τ -event (hr/event)	Time To Reach Steady-State t^* (hour)	Fraction Absorbed (2) FA (unitless)	Molecular Weight (3) (g/mol)	Permeability Coefficient through Stratum Corneum/ Permeability Coefficient Across the Viable Epidermis B (unitless)
Methyl-tert-Butyl Ether (MTBE) (4)	2.1E-03	0.33	0.79	1.0	88.15	7.6E-03
Aluminum	1.0E-03	-	-	-	30.01	-
Arsenic	1.0E-03	-	-	-	77.95	-
Iron	1.0E-03	-	-	-	55.84	-
Manganese	1.0E-03	-	-	-	54.94	-

Footnotes:

- (1) Source: EPA, 2004c. Risk Assessment Guidance for Superfund: Vol I - Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Exhibits B-3 and B-4. Note that if no value for inorganics was given for Kp, the default value of 1.0E-03 was used.
- (2) Conservative assumption.
- (3) Source: RAIS, 2010. Chemical Data Profiles. From the website <http://rais.ornl.gov/tools/profile.php>
- (4) No values for the absorbed dose parameters were listed in RAGS E, Exhibit B-3 for MTBE. Equations from Appendix A of RAGS E were used to calculate the parameters Kp, tau, t^* and B.

TABLE 4-4.3
ABSORBED DOSE CALCULATION FOR THE PARK WORKER
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Scenario Timeframe:	Future
Receptor Population:	Park Worker
Receptor Age:	Adult
Media:	Groundwater

	Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2	Dimensionless Permeability Ratio	
Variable Symbols =	tevent	τ -event	Cgw	FA	Kp	CF2	B	DAevent
Parameter Values =	1.00	Chemical-specific	Chemical-specific	Chemical-specific	Chemical-specific	0.001	Chemical-Specific	Calculated
Parameter Units =	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³	Unitless	mg/cm ² -event
Chemical of Potential Concern	Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2	Permeability Coefficient through Stratum Corneum / Permeability Coefficient Across the Viable Epidermis	Absorbed Dose per Event (1)
	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³		mg/cm ² -event
Methyl-tert-Butyl Ether (MTBE)	1.00	0.33	4.9E-02	1.0	2.1E-03	0.001	0.00762	1.71E-07
Aluminum	1.00	-	2.5E+00	-	1.0E-03	0.001	-	2.54E-06
Arsenic	1.00	-	1.1E-02	-	1.0E-03	0.001	-	1.10E-08
Iron	1.00	-	9.1E+00	-	1.0E-03	0.001	-	9.08E-06
Manganese	1.00	-	5.8E-02	-	1.0E-03	0.001	-	5.81E-08

Footnote:

(1) DAevent calculated using the following equations:

For organic compounds, if tevent<t*: $DA_{event} = C_{gw} \cdot 2 \cdot FA \cdot Kp \cdot CF2 \cdot (6 \cdot \tau_{event} \cdot tevent / \pi)^{1/2}$
 $DA_{event} = C_{gw} \cdot FA \cdot Kp \cdot CF2 \cdot [(tevent / (1+B)) + (2 \cdot \tau_{event} \cdot (1+3B+3B^2) / (1+B)^2)]$
For inorganic compounds, $DA_{event} = C_{gw} \cdot Kp \cdot CF2 \cdot tevent$

if tevent>t*

TABLE 4-4.4
ABSORBED DOSE CALCULATION FOR THE PARK USER
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works & Storage Facility
Milford, New Hampshire

Scenario Timeframe:	Future
Receptor Population:	Park User
Receptor Age:	Adolescent
Media:	Groundwater

	Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2	Dimensionless Permeability Ratio	
Variable Symbols =	tevent	tauevent	Cgw	FA	Kp	CF2	B	DAevent
Parameter Values =	2.00	Chemical-specific	Chemical-specific	Chemical-specific	Chemical-specific	0.001	Chemical-Specific	Calculated
Parameter Units =	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³	Unitless	mg/cm ² -event
Chemical of Potential Concern	Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2	Permeability Coefficient through Stratum Corneum / Permeability Coefficient Across the Viable Epidermis	Absorbed Dose per Event (1)
	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³		mg/cm ² -event
Methyl-tert-Butyl Ether (MTBE)	2.00	0.33	4.9E-02	1.0	2.1E-03	0.001	0.00762	2.73E-07
Aluminum	2.00	-	2.5E+00	-	1.0E-03	0.001	-	5.08E-06
Arsenic	2.00	-	1.1E-02	-	1.0E-03	0.001	-	2.20E-08
Iron	2.00	-	9.1E+00	-	1.0E-03	0.001	-	1.82E-05
Manganese	2.00	-	5.8E-02	-	1.0E-03	0.001	-	1.16E-07

Footnote:

(1) DAevent calculated using the following equations:

For organic compounds, if tevent<t*: $DA_{event} = C_{gw} \cdot 2 \cdot FA \cdot K_p \cdot CF_2 \cdot (6 \cdot \tau_{auevent} \cdot \tau_{event} / \pi)^{1/2}$
 $DA_{event} = C_{gw} \cdot FA \cdot K_p \cdot CF_2 \cdot [(\tau_{event} / (1+B)) + (2 \cdot \tau_{auevent} \cdot (1+3B+3B^2) / (1+B)^2)]$
For inorganic compounds, $DA_{event} = C_{gw} \cdot K_p \cdot CF_2 \cdot \tau_{event}$

if tevent>t*

TABLE 4-4.5
ABSORBED DOSE CALCULATION FOR THE ADULT RESIDENT
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Scenario Timeframe:	Future
Receptor Population:	Resident
Receptor Age:	Adult
Media:	Groundwater

Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2
----------------	--------------------	------------------------------	-------------------	--	---------------------

Variable Symbols =	tevent	tauevent	Cgw	FA	Kp	CF2	DAevent
Parameter Values =	0.25	Chemical-specific	Chemical-specific	Chemical-specific	Chemical-specific	0.001	Calculated
Parameter Units =	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³	mg/cm ² -event

Chemical of Potential Concern	Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2	Absorbed Dose per Event (1)
	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³	mg/cm ² -event
Methyl-tert-Butyl Ether (MTBE)	0.25	0.33	4.9E-02	1.0	2.1E-03	0.001	8.17E-08
Aluminum	0.25	-	2.5E+00	-	1.0E-03	0.001	6.35E-07
Arsenic	0.25	-	1.1E-02	-	1.0E-03	0.001	2.75E-09
Iron	0.25	-	9.1E+00	-	1.0E-03	0.001	2.27E-06
Manganese	0.25	-	5.8E-02	-	1.0E-03	0.001	1.45E-08

Footnote:

(1) DAevent calculated using the following equations:

For organic compounds, if $tevent < t^*$:

$$DAevent = Cgw \cdot 2 \cdot FA \cdot Kp \cdot CF2 \cdot (6 \cdot tau-event \cdot tevent / \pi)^{1/2}$$

$$DAevent = Cgw \cdot FA \cdot Kp \cdot CF2 \cdot [(tevent / (1+B)) + (2 \cdot tau-event \cdot (1+3B+3B^2) / (1+B)^2)]$$

For inorganic compounds,

$$DAevent = Cgw \cdot Kp \cdot CF2 \cdot tevent$$

if $tevent > t^*$

TABLE 4-4.6
 ABSORBED DOSE CALCULATION FOR THE CHILD RESIDENT
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Scenario Timeframe:	Future
Receptor Population:	Resident
Receptor Age:	Child
Media:	Groundwater

Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2
----------------	--------------------	------------------------------	-------------------	--	---------------------

Variable Symbols =	tevent	tauevent	Cgw	FA	Kp	CF2	DAevent
Parameter Values =	0.58	Chemical-specific	Chemical-specific	Chemical-specific	Chemical-specific	0.001	Calculated
Parameter Units =	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³	mg/cm ² -event

Chemical of Potential Concern	Event Duration	Lag Time Per Event	Concentration in Groundwater	Fraction Absorbed	Dermal Permeability Coefficient of Compound in Water	Conversion Factor 2	Absorbed Dose per Event (1)
	hr/event	hr/event	mg/L	unitless	cm/hr	L/cm ³	mg/cm ² -event
Methyl-tert-Butyl Ether (MTBE)	0.58	0.33	4.9E-02	1.0	2.1E-03	0.001	1.24E-07
Aluminum	0.58	-	2.5E+00	-	1.0E-03	0.001	1.47E-06
Arsenic	0.58	-	1.1E-02	-	1.0E-03	0.001	6.38E-09
Iron	0.58	-	9.1E+00	-	1.0E-03	0.001	5.27E-06
Manganese	0.58	-	5.8E-02	-	1.0E-03	0.001	3.37E-08

Footnote:

(1) DAevent calculated using the following equations:

For organic compounds, if $tevent < t^*$: $DAevent = Cgw \cdot 2 \cdot FA \cdot Kp \cdot CF2 \cdot (6 \cdot tauevent \cdot tevent / \pi)^{1/2}$
 $DAevent = Cgw \cdot FA \cdot Kp \cdot CF2 \cdot [(tevent / (1+B)) + (2 \cdot \tau \cdot event \cdot (1+3B+3B^2) / (1+B)^2)]$
 For inorganic compounds, $DAevent = Cgw \cdot Kp \cdot CF2 \cdot tevent$

if $tevent > t^*$

TABLE 4-5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s)
Methyl-tert-Butyl Ether (MTBE)		-	-	-	-	-	-	-	-	-
Aluminum	Chronic	1.0E+00	mg/kg-day	100%	1.0E+00	mg/kg-day	CNS, Neural	100	PPRTV	10/23/2006
Arsenic	Chronic	3.0E-04	mg/kg-day	95%	3.0E-04	mg/kg-day	Skin	3	IRIS	11/17/2010
Iron	Chronic	7.0E-01	mg/kg-day	100%	7.0E-01	mg/kg-day	Stomach	1.5	PPRTV	9/30/2009
Manganese	Chronic	2.4E-02	mg/kg-day	4%	9.6E-04	mg/kg-day	CNS	1	IRIS	11/17/2010

Footnotes:

(1) EPA, 2004c. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Risk Assessment). Exhibit 4-1.

(2) Absorbed RfD is a default value of 100% Absorption Efficiency for Dermal

- Not Available
CNS Central Nervous System

Sources:
IRIS Integrated Risk Information System
PPRTV Provisional Peer Reviewed Toxicity Values

TABLE 4-5.2
 NON-CANCER TOXICITY DATA -- INHALATION
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units			Source(s)	Date(s)
Methyl-tert-Butyl Ether (MTBE)	Chronic	3.0E+00	mg/m ³	Liver, Kidney	100	IRIS	11/18/2010
Aluminum	Chronic	5E-03	mg/m ³	CNS	300	PPRTV	10/23/2006
Arsenic	Chronic	1.50E-05	mg/m ³	CNS, Heart	-	CalEPA	11/17/2010
Iron	-	-	-	-	-	-	-
Manganese	Chronic	5.0E-05	mg/m ³	Brain	1000	IRIS	11/17/2010

Footnotes:

- Not Available
 CNS Central Nervous System

Sources:

CalEPA California Environmental Protection Agency's On-line Toxicity Criteria Database. <http://www.oehha.ca.gov/risk/chemicalDB/>
 IRIS Integrated Risk Information System
 PPRTV Provisional Peer Reviewed Toxicity Values

TABLE 4-6.1
 CANCER TOXICITY DATA -- ORAL/DERMAL
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Chemical of Potential Concern	Oral Cancer Slope Factor (CSFo)		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal		Weight of Evidence/ Cancer Guideline Description (3)	Oral CSF	
	Value	Units		Value (2)	Units		Source(s)	Date(s)
Methyl-tert-Butyl Ether (MTBE)	1.8E-03	(mg/kg-day) ⁻¹	100%	1.8E-03	(mg/kg-day) ⁻¹	NA	CalEPA	11/17/2010
Aluminum	-	-	-	-	-	-	-	-
Arsenic	1.5E+00	(mg/kg-day) ⁻¹	95%	1.5E+00	(mg/kg-day) ⁻¹	A	IRIS	11/17/2010
Iron	-	-	-	-	-	-	-	-
Manganese	-	-	-	-	-	D	IRIS	11/17/2010

Footnotes:

(1) EPA, 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Risk Assessment). Exhibit 4-1.

(2) Absorbed Cancer Slope Factor for Dermal = Oral Cancer Slope Factor / Oral Absorption Efficiency for Dermal.

(3) EPA Weight of Evidence Groups:

A - Human carcinogen

D - Not classifiable as a human carcinogen

NA=Not Assessed under EPA IRIS

TABLE 4-6.2
 CANCER TOXICITY DATA -- INHALATION
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Chemical of Potential Concern	Unit Risk (UR)		Weight of Evidence/ Cancer Guideline Description (1)	Unit Risk : Inhalation CSF	
	Value	Units		Source(s)	Date(s)
Methyl-tert-Butyl Ether (MTBE)	2.6E-04	(mg/m ³)-1	-	CalEPA	11/17/2010
Aluminum	-	-	-	-	-
Arsenic	4.3E+00	(mg/m ³)-1	A	IRIS	11/17/2010
Iron	-	-	-	-	-
Manganese	-	-	D	IRIS	11/17/2010

Footnotes:

(1) EPA Weight of Evidence Groups:

A - Human carcinogen

D - Not classifiable as a human carcinogen

TABLE 4-7.1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS FOR THE PARK WORKER
REASONABLE MAXIMUM EXPOSURE
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Scenario Timeframe: Future
Receptor Population: Park Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Groundwater	Ingestion	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	9.8E-05	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	1.8E-07	2.7E-04	mg/kg-day	-	mg/kg-day	-
				Aluminum	2.54E+00	mg/L	5.1E-03	mg/kg-day	-	(mg/kg-day) ⁻¹	-	1.4E-02	mg/kg-day	1.0E+00	mg/kg-day	1.4E-02
				Arsenic	1.10E-02	mg/L	2.2E-05	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.3E-05	6.2E-05	mg/kg-day	3.0E-04	mg/kg-day	2.1E-01
				Iron	9.08E+00	mg/L	1.8E-02	mg/kg-day	-	(mg/kg-day) ⁻¹	-	5.1E-02	mg/kg-day	7.0E-01	mg/kg-day	7.3E-02
				Manganese	5.81E-02	mg/L	1.2E-04	mg/kg-day	-	(mg/kg-day) ⁻¹	-	3.3E-04	mg/kg-day	2.4E-02	mg/kg-day	1.4E-02
			Exp. Route Total								3.3E-05					3.1E-01
			Dermal Absorption	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	1.5E-06	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	2.7E-09	4.2E-06	mg/kg-day	-	mg/kg-day	-
				Aluminum	2.54E+00	mg/L	2.3E-05	mg/kg-day	-	(mg/kg-day) ⁻¹	-	6.3E-05	mg/kg-day	1.0E+00	mg/kg-day	6.3E-05
				Arsenic	1.10E-02	mg/L	9.8E-08	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.5E-07	2.7E-07	mg/kg-day	3.0E-04	mg/kg-day	9.1E-04
				Iron	9.08E+00	mg/L	8.1E-05	mg/kg-day	-	(mg/kg-day) ⁻¹	-	2.3E-04	mg/kg-day	7.0E-01	mg/kg-day	3.2E-04
				Manganese	5.81E-02	mg/L	5.2E-07	mg/kg-day	-	(mg/kg-day) ⁻¹	-	1.4E-06	mg/kg-day	9.6E-04	mg/kg-day	1.5E-03
			Exp. Route Total								1.5E-07					2.8E-03
			Exposure Point Total								3.3E-05					3.1E-01
			Exposure Medium Total								3.3E-05					3.1E-01
			Medium Total								3.3E-05					3.1E-01
			Total of Receptor Risks Across All Media								3.3E-05	Total of Receptor Hazards Across All Media				3.1E-01

TABLE 4-7.2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS FOR THE PARK USER
REASONABLE MAXIMUM EXPOSURE
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Scenario Timeframe: Future
Receptor Population: Park User
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations						
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient		
							Value	Units	Value	Units		Value	Units	Value	Units			
Groundwater	Groundwater	Groundwater	Ingestion	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	4.7E-06	mg/kg-day	1.8E-03	(mg/kg-day)-1	8.5E-09	4.1E-05	mg/kg-day	-	mg/kg-day	-		
				Aluminum	2.54E+00	mg/L	2.5E-04	mg/kg-day	-	(mg/kg-day)-1	-	2.1E-03	mg/kg-day	1.0E+00	mg/kg-day	2.1E-03		
				Arsenic	1.10E-02	mg/L	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-06	9.3E-06	mg/kg-day	3.0E-04	mg/kg-day	3.1E-02		
				Iron	9.08E+00	mg/L	8.8E-04	mg/kg-day	-	(mg/kg-day)-1	-	7.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.1E-02		
				Manganese	5.81E-02	mg/L	5.6E-06	mg/kg-day	-	(mg/kg-day)-1	-	4.9E-05	mg/kg-day	2.4E-02	mg/kg-day	2.0E-03		
			Exp. Route Total									1.6E-06					4.6E-02	
			Dermal Absorption	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	8.4E-07	mg/kg-day	1.8E-03	(mg/kg-day)-1	1.5E-09	7.3E-06	mg/kg-day	-	mg/kg-day	-		
				Aluminum	2.54E+00	mg/L	1.6E-05	mg/kg-day	-	(mg/kg-day)-1	-	1.4E-04	mg/kg-day	1.0E+00	mg/kg-day	1.4E-04		
				Arsenic	1.10E-02	mg/L	6.7E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.0E-07	5.9E-07	mg/kg-day	3.0E-04	mg/kg-day	2.0E-03		
				Iron	9.08E+00	mg/L	5.6E-05	mg/kg-day	-	(mg/kg-day)-1	-	4.9E-04	mg/kg-day	7.0E-01	mg/kg-day	7.0E-04		
				Manganese	5.81E-02	mg/L	3.6E-07	mg/kg-day	-	(mg/kg-day)-1	-	3.1E-06	mg/kg-day	9.6E-04	mg/kg-day	3.2E-03		
			Exp. Route Total									1.0E-07					6.0E-03	
			Exposure Point Total										1.7E-06					5.2E-02
			Exposure Medium Total										1.7E-06					5.2E-02
Medium Total										1.7E-06					5.2E-02			
Total of Receptor Risks Across All Media											1.7E-06	Total of Receptor Hazards Across All Media				5.2E-02		

Table 4-7.3
CALCULATION OF CHEMICAL CANCER RISKS AND NON CANCER HAZARDS FOR THE ADULT RESIDENT
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Groundwater	Ingestion	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	5.8E-04	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	1.0E-06	1.3E-03	mg/kg-day	-	mg/kg-day	-
				Aluminum	2.54E+00	mg/L	3.0E-02	mg/kg-day	-	(mg/kg-day) ⁻¹	-	7.0E-02	mg/kg-day	1.0E+00	mg/kg-day	7.0E-02
				Arsenic	1.10E-02	mg/L	1.3E-04	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	1.9E-04	3.0E-04	mg/kg-day	3.0E-04	mg/kg-day	1.0E+00
				Iron	9.08E+00	mg/L	1.1E-01	mg/kg-day	-	(mg/kg-day) ⁻¹	-	2.5E-01	mg/kg-day	7.0E-01	mg/kg-day	3.6E-01
				Manganese	5.81E-02	mg/L	6.8E-04	mg/kg-day	-	(mg/kg-day) ⁻¹	-	1.6E-03	mg/kg-day	2.4E-02	mg/kg-day	6.6E-02
			Exp. Route Total								1.9E-04					1.5E+00
			Dermal Absorption	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	8.6E-06	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	1.6E-08	2.0E-05	mg/kg-day	-	mg/kg-day	-
				Aluminum	2.54E+00	mg/L	6.7E-05	mg/kg-day	-	(mg/kg-day) ⁻¹	-	1.6E-04	mg/kg-day	1.0E+00	mg/kg-day	1.6E-04
				Arsenic	1.10E-02	mg/L	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	4.4E-07	6.8E-07	mg/kg-day	3.0E-04	mg/kg-day	2.3E-03
				Iron	9.08E+00	mg/L	2.4E-04	mg/kg-day	-	(mg/kg-day) ⁻¹	-	5.6E-04	mg/kg-day	7.0E-01	mg/kg-day	8.0E-04
				Manganese	5.81E-02	mg/L	1.5E-06	mg/kg-day	-	(mg/kg-day) ⁻¹	-	3.6E-06	mg/kg-day	9.6E-04	mg/kg-day	3.7E-03
			Exp. Route Total								4.5E-07					6.9E-03
			Inhalation	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	2.5E-02	mg/m ³	2.6E-04	(mg/m ³) ⁻¹	6.4E-06	2.5E-02	mg/m ³	3.0E+00	mg/m ³	8.2E-03
			Exp. Route Total								6.4E-06					8.2E-03
		Exposure Point Total										2.0E-04				
	Exposure Medium Total										2.0E-04					1.5E+00
Medium Total										2.0E-04					1.5E+00	
Total of Receptor Risks Across All Media											2.0E-04	Total of Receptor Hazards Across All Media				1.5E+00

TABLE 4-7.4 RME
 CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS FOR THE CHILD RESIDENT
 REASONABLE MAXIMUM EXPOSURE
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Scenario Timeframe: Future
 Receptor Population: Resident
 Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations							
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient			
							Value	Units	Value	Units		Value	Units	Value	Units				
Groundwater	Groundwater	Groundwater	Ingestion	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	2.7E-04	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	4.8E-07	3.1E-03	mg/kg-day	-	mg/kg-day	-			
				Aluminum	2.54E+00	mg/L	1.4E-02	mg/kg-day	-	(mg/kg-day) ⁻¹	-	1.6E-01	mg/kg-day	1.0E+00	mg/kg-day	1.6E+01			
				Arsenic	1.10E-02	mg/L	6.0E-05	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	9.0E-05	7.0E-04	mg/kg-day	3.0E-04	mg/kg-day	2.3E+00			
				Iron	9.08E+00	mg/L	5.0E-02	mg/kg-day	-	(mg/kg-day) ⁻¹	-	5.8E-01	mg/kg-day	7.0E-01	mg/kg-day	8.3E-01			
				Manganese	5.81E-02	mg/L	3.2E-04	mg/kg-day	-	(mg/kg-day) ⁻¹	-	3.7E-03	mg/kg-day	2.4E-02	mg/kg-day	1.5E-01			
			Exp. Route Total						9.1E-05						3.5E+00				
			Dermal Absorption	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	4.5E-06	mg/kg-day	1.8E-03	(mg/kg-day) ⁻¹	8.1E-09	5.2E-05	mg/kg-day	-	mg/kg-day	-			
				Aluminum	2.54E+00	mg/L	5.3E-05	mg/kg-day	-	(mg/kg-day) ⁻¹	-	6.2E-04	mg/kg-day	1.0E+00	mg/kg-day	6.2E-04			
				Arsenic	1.10E-02	mg/L	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day) ⁻¹	3.5E-07	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	9.0E-03			
				Iron	9.08E+00	mg/L	1.9E-04	mg/kg-day	-	(mg/kg-day) ⁻¹	-	2.2E-03	mg/kg-day	7.0E-01	mg/kg-day	3.2E-03			
				Manganese	5.81E-02	mg/L	1.2E-06	mg/kg-day	-	(mg/kg-day) ⁻¹	-	1.4E-05	mg/kg-day	9.6E-04	mg/kg-day	1.5E-02			
			Exp. Route Total						3.5E-07						2.8E-02				
			Inhalation	Methyl-tert-Butyl Ether (MTBE)	4.90E-02	mg/L	2.5E-02	mg/m³	2.6E-04	(mg/m³) ⁻¹	6.4E-06	2.5E-02	mg/m³	3.0E+00	(mg/m³) ⁻¹	8.2E-03			
			Exp. Route Total						6.4E-06						8.2E-03				
			Exposure Point Total						9.8E-05						3.5E+00				
			Exposure Medium Total											9.8E-05					
			Medium Total											9.8E-05					
Total of Receptor Risks Across All Media											9.8E-05	Total of Receptor Hazards Across All Media				3.5E+00			

TABLE 4-8.1
 SCREENING LEVEL RISK ASSESSMENT OF THE UP-GRADIENT WELL DATA
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

		Maximum Detected Concentration	Well Exhibiting the Maximum Detected Concentration	Date of the Maximum Detected Concentration	Safe Drinking Water Act Maximum Contaminant Level (MCL) (1, 2, 7)	Safe Drinking Water Act Maximum Contaminant Level Goal (MCLG) (1,2,7)	USEPA Regional Screening Level (RSL) for Tapwater (3,7)
ANALYTE	CAS #	(ug/L)			(ug/L)	(ug/L)	(ug/L)
VOCS							
1,2-Dibromoethane	106-93-4	0.02	XM MW-10	Apr-08	- (4)	-	0.0065
1,2-Dichloroethene (total)	540-59-0	0.85 J	MW-18B	Oct-09	-	-	330
1,2,4-Trichlorobenzene	120-82-1	4.7	MW-18B	Oct-09	70	70	2.3
1,2,4-Trimethylbenzene	95-63-6	29	XM MW-10	Apr-09	-	-	15
1,3,5-Trimethylbenzene	108-67-8	10	XM MW-10	Apr-09	-	-	370
2-Propanone (acetone)	67-64-1	2.8	KW03D	Oct-09	-	-	22,000
Benzene	71-43-2	5.1	XM MW-10	Oct-07	5	-	0.41
Chloroform	67-66-3	0.45 J	MW-18B	Apr-08	-	-	0.19
cis-1,2-Dichloroethylene	156-59-2	0.93 J	MW-18B	Oct-08	70	70	370
Ethylbenzene	100-41-4	59.8	XM MW-10	Oct-07	700	700	1.5
Isopropylbenzene (Cumene)	98-82-8	6.3	XM MW-10	Oct-07	-	-	680
Methyl tert butyl ether (MTBE)	1634-04-4	0.48 J	MW-18B	Apr-08	-	-	12
Naphthalene	91-20-3	13.7	XM MW-10	Oct-07	-	-	0.14
N-Propylbenzene	103-65-1	15.7	XM MW-10	Oct-07	-	-	1,300
Sec-Butylbenzene	135-98-8	21.1	XM MW-10	Apr-09	-	-	-
Styrene	100-42-5	5.8	XM MW-10	Oct-07	100	100	1,600
Toluene	108-88-3	108	XM MW-10	Apr-09	1,000	1,000	2,300
Trichloroethylene	79-01-6	20	MW-18B	Jul-08	5	-	2
Xylenes, Total	1330-20-7	120	XM MW-10	Apr-09	10,000	10,000	200
SVOCs							
Bis(2-ethylhexyl)phthalate	117-81-7	2.5	KW03D	Oct-09	6	-	4.8
Di-n-Butylphthalate	84-74-2	0.3 J	MW-18B	Oct-07	-	-	3,700
Di-n-Octylphthalate	117-84-0	0.6 J	MW-18B	Oct-07	-	-	-
METALS							
Aluminum	7429-90-5	53 J	MW-18B	Oct-09	-	-	37,000
Barium	7440-39-3	49.7	MW-18B	Oct-09	2,000	2,000	7,300
Calcium	7440-70-2	38,800	MW-18B	Oct-09	-	-	-
Copper	7440-50-8	3.7 J	MW-18B	Oct-09	1300	1300	1500
Iron	7439-89-6	690	KW03D	Oct-09	300 (5)	-	26,000
Magnesium	7439-95-4	4,000	KW03D	Apr-07	-	-	-
Manganese	7439-96-5	384 J	MW-18B	Jul-07	50 (5)	-	880
Potassium	7440-09-7	4,690	MW-18B	Oct-09	-	-	-
Sodium	7440-23-5	45,000	KW03D	Oct-09	-	-	-
Vanadium	7440-62-2	2.1 J	MW-18B	Oct-09	-	-	2.6
Zinc	7440-66-6	2.6 J	MW-18B	Oct-09	-	-	11,000
PCBs							
Aroclor 1221	11104-28-2	11 J	MW-18B	Jan-10	-	-	0.0068
Aroclor 1242	53469-21-9	4.9 J	MW-18B	Oct-09	-	-	0.034
Aroclor 1260	11096-82-5	0.075	MW-18B	Oct-07	-	-	0.034
Total PCBs		12 J	MW-18B	Jan-09	0.5	-	0.17 (6)

Footnotes:

- 1 USEPA Safe Drinking Water Act Maximum Contaminant Levels, <http://water.epa.gov/drink/contaminants/index.cfm>, accessed 11/18/2010.
- 2 NHDES Chapter Env-DW 700 WATER QUALITY: STANDARDS, MONITORING, TREATMENT, COMPLIANCE AND REPORTING, Tables 704-1, 705-1, 705-2, and 706-1, FP 2010-3 Adopted to be effective 05/01/10.
- 3 USEPA Regional Screening Level SummaryTable May 2010, Values for Tapwater.
- 4 "-" signifies "No Reported Value"
- 5 Value shown is a National Secondary Standard or State Secondary MCL (SMCL)
- 6 Value shown is the "Low Risk" value
- 7 Values in **bold** indicate an exceedance of this screening value.

Table 5-2
2004 Sediment Sampling Analytical Results
Final Remedial Investigation Report
Operable Unit 2, Fletcher’s Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			SRSD01	SRSD02	SRSD03	SRSD04	SRSD05	SRSD06	SRSD07	SRSD08	SRSD09	SRSD10	SRSD11	SRSD12	SRSD13	SRSD14	SRSD15	SRSD16	SRSD17	SRSD18	SRSD19	SRSD20	SRSD21	SRSD22
Sample Depth (inches):			0 - 3.96	0 - 3.96	0 - 3.96	0 - 3.96	0- 3.96	0 - 3.96	0 - 3.96	0 - 3.96	0 - 3.96	0- 3.97	0 - 3.96	0 - 3.96	0 - 3.96	0 - 3.96	0- 3.98	0 - 3.96	0 - 3.96	0 - 3.96	0 - 3.96	0- 3.99	0 - 3.96	0 - 3.96
Date Collected:	TEC	PEC	6/4/2004	6/4/2004	6/4/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/3/2004	6/2/2004	6/2/2004
Semivolatile Organics																								
Acenaphthylene			15	27	23	33	12	30	8.6U	12	8.3U	19	13	28	36	10	23	17	20	9	18	19	17	14
Benzo(a)anthracene	108	1,050	72	180	79	220	55	100	19	38	32	97	41	110	260	140	96	61	89	70	100	170	170	89
Benzo(a)Pyrene	150	1,450	78	190	93	240	50	120	21	45	34	84	46	100	280	120	100	64	99	49	110	150	160	100
Benzo(b)fluoranthene			72	160	89	190	38	110	17	38	27	67	37	75	350	110	100	73	110	75	130	150	170	140
Benzo(g,h,i)perylene			49	120	70	140	30	89	15	32	20	48	32	62	190	67	70	48	66	29	73	76	94	76
Benzo(k)flouranthene			71	170	85	190	43	110	19	43	30	73	37	83	170	85	82	33	66	46	79	100	120	67
Chrysene	166	1,290	100	230	120	250	62	160	27	56	37	110	53	120	330	140	130	77	120	110	130	180	180	130
Dibenz(a,h)anthracene			16	39	22	46	8.4U	27	8.6U	10	8.3U	16	8.9U	17	45	18	17	12	17	9	19	22	27	19
Indeno(1,2,3-c,d)pyrene			50	130	69	140	31	85	13	30	20	46	28	59	180	62	64	40	61	29	68	78	92	69
Naphthalene	176	561	11U	12U	11U	20	8	11U	8.6U	9.2U	8.3U	8.2U	8.9U	8.8U	10U	9U	9.8U	7.8U	9.3U	8.2U	9U	7.9U	8.4U	10U
Phenanthrene	204	1,170	90	240	100	420	75	160	44	47	22	150	64	150	290	190	120	83	120	130	140	150	220	120
PCB's																								
Aroclor 1242			8.9U	9.6U	8.9U	7.6U	6.7U	8.9U	6.9U	150U	6.6U	6.6U	7.1U	7U	32,000	120P	7,000	150	700	260	1,400	240	6.8U	680
Aroclor 1248			8.9U	9.6U	8.9U	200	6.7U	230	54	15,000	6.6U	6.6U	86	7U	410U	7.2U	79U	6.2U	7.5U	6.6U	36U	6.3U	6.8U	8.2U
Aroclor 1254			8.9U	9.6U	8.9U	7.6U	6.6U	8.9U	6.9U	150U	6.6U	6.6U	7.1U	7U	4,300	7.2U	350	40	100	54	200	140	6.8U	120
Total PCB's	60	676	-	-	-	200	-	230	54	<u>15,000</u>	-	-	86	-	<u>36,300</u>	-	<u>7,350</u>	190	<u>800</u>	294	<u>1,600</u>	380	-	120
Pesticides																								
alpha-Chlordane			0.44U	0.48U	0.44U	0.38U	0.34U	0.44U	0.34U	0.37U	0.33U	0.33U	0.36U	0.35U	0.41U	0.36U	0.39U	0.31U	0.37U	0.33U	0.36U	0.32U	0.34U	0.41U
Dieldrin			0.44U	0.48U	0.44U	0.38U	0.34U	0.44U	0.34U	0.37U	0.33U	0.33U	0.36U	0.35U	0.41U	0.36U	0.39U	0.31U	0.37U	0.33U	0.36U	0.32U	0.34U	0.41U
gamma-Chlordane			0.44U	0.48U	0.44U	0.38U	0.34U	0.44U	0.34U	0.37U	0.33U	0.33U	0.36U	0.35U	0.41U	0.36U	0.39U	0.31U	0.37U	0.33U	0.36U	0.32U	0.34U	0.41U
Heptachlor epoxide (B)			0.44U	0.48U	0.44U	0.38U	0.34U	0.44U	0.34U	0.37U	0.33U	0.33U	0.36U	0.35U	0.41U	0.36U	0.39U	0.31U	0.37U	0.33U	0.36U	0.32U	0.34U	0.41U
Technical Chlordane			4.4U	4.8U	4.4U	3.8U	3.4U	4.4U	3.4U	3.7U	3.3U	3.3U	3.6U	3.5U	4.1U	3.6U	3.9U	3.1U	3.7U	3.3U	3.6U	3.2U	3.4U	4.1U
Metals																								
Antimony			100UN	86UN	79UN	84JN	310U	98JN	64UN	63UN	63UN	61UN	64UN	71UN	99UN	67UN	76UN	67UN	68UN	66UN	72UN	320U	70U	100U
Arsenic	9,790	33,000	8,500	7,600	6,000	6,400	4,100	4,500	4,100	3,200	4,100	4,300	3,400	3,700	7,400	4,300	4,600	5,100	2,800	3,900	4,800	3,500	3,300	11,000
Cadmium	990	4,980	610	280	150	180	22	190	27	46	22	30	18	40	390	56	100	60	83	44	120	38	50	610
Chromium	43,400	111,000	12,000	9,800	8,100	8,000	4,700	6,800	4,100	4,700	3,800	4,200	5,600	5,100	11,000	4,600	6,900	5,900	5,600	5,400	6,000	5,000	6,200	16,000
Lead	35,800	128,000	17,000*	12,000*	8,800*	9,100*	4,200	8,800*	3,700*	4,200*	3,900*	4,000*	3,600*	3,600*	14,000	4,300	6,000	4,500	5,200	4,500	7,300	4,300	5,000	22,000
Manganese			210,000	170,000	160,000	84,000	69,000	50,000	60,000	56,000	41,000	59,000	60,000	65,000	150,000	74,000	58,000	63,000	47,000	52,000	62,000	53,000	98,000	130,000
Mercury			25	18	10	15	3.9J	11	1.3J	5J	1.8J	1.9J	2.1J	2.6J	24J	3J	6.7J	3.2J	4.7J	4.2J	7.1J	2.6U	3.4J	34
Nickel	22,700	48,600	5,800E*	4,900E*	4,300E*	5,300E*	3,600	3,500E*	2,500E*	2,700E*	2,400E*	3,400E*	3,400E*	2,900E*	4,900E*	2,800E*	3,200E*	3,800E*	2,800E*	3,500E*	3,100E*	4,300	3,700	6,900
Vanadium			11,000	9,300	7,700	9,000	5,600	6,600	5,400	5,500	4,500	5,200	6,700	6,000	9,600	5,600	7,000	7,500	6,200	6,800	6,200	6,200	6,900	14,000

Notes:
Results in parts per million (ug/kg)
E- Indicates an estimated value above the calibration range of the instrument
J- Indicates an estimated value less than the practical quantitation limit
N- Indicated a spiked sample recovery not within control limits
P- ICP-AES
U- indicates constituents are non detected
*Indicated analysis not within quality control limits
See Figure 5-2 for 2004 Supplemental Sediment Investigation Locations
TEC= Threshold Effects Concentration
PEC= Probable Effects Concentration
TEC/PEC values from MacDonald et al., 2000.
Bold Values represent TCE exceedences
Bold and Underlined values represent PCE exceedences

Table 5-2
2004 Sediment Sampling Analytical Results
Final Remedial Investigation Report
Operable Unit 2, Fletcher’s Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			SRSD23	SRSD24	SRSD25	SRSD26	SRSD27	SRSD28	SRSD30	SRSD32	SRSD34	SRSD35	SRSD36	SRSD37
Sample Depth (inches):			0 - 3.96	0 - 3.96	0- 3.100	0 - 3.96	0 - 3.96	0 - 3.96	0 - 3.96	0- 3.101	0 - 3.96	0 - 3.96	0 - 3.96	0 - 3.96
Date Collected:	TEC	PEC	6/2/2004	6/2/2004	6/2/2004	6/2/2004	6/2/2004	6/2/2004	6/4/2004	6/4/2004	6/4/2004	6/2/2004	6/3/2004	6/4/2004
Semivolatile Organics														
Acenaphthylene			8.7U	19	30	9U	12	19	8.3U	8.4U	8.3U	9	27	19
Benzo(a)anthracene	108	1,050	25	68	180	56	180	150	20	19	8.3U	81	82	78
Benzo(a)Pyrene	150	1,450	27	63	200	51	200	150	21	21	8.3U	85	78	90
Benzo(b)fluoranthene			30	81	240	65	260	180	17	18	8.3U	99	57	87
Benzo(g,h,i)perylene			20	38	140	33	140	94	14	14	8.3U	51	42	63
Benzo(k)flouranthene			21	32	120	33	140	89	18	19	8.3U	54	64	85
Chrysene	166	1,290	34	86	230	70	260	180	30	28	8.3U	96	92	120
Dibenz(a,h)anthracene			8.7U	11	33	10	33	25	8.3U	8.4U	8.3U	14	12	19
Indeno(1,2,3-c,d)pyrene			17	36	130	31	130	90	13	14	8.3U	49	44	60
Naphthalene	176	561	8.7U	8.3U	10U	9U	8.9U	8.4U	8.3U	8.4U	8.3U	8.7U	9.1U	12U
Phenanthrene	204	1,170	26	150	180	77	270	200	20	27	8.3U	89	110	110
PCB's														
Aroclor 1242			260	99	790	150	1,000	530	6.7U	6.7U	6.6U	7U	7.3U	9.5U
Aroclor 1248			7U	6.6U	8.1U	7.2U	7.1U	6.8U	6.7U	6.7U	14	180	7.3U	9.5U
Aroclor 1254			38	30	170	38	200	170	6.7U	6.7U	6.6U	7U	7.3U	9.5U
Total PCB's	60	676	298	129	<u>960</u>	188	<u>1,200</u>	<u>700</u>	-	-	14	180	-	-
Pesticides														
alpha-Chlordane			0.35U	0.33U	0.41U	0.36U	0.36U	0.34U	0.33U	0.34U	0.33U	0.35U	0.36U	0.47U
Dieldrin			0.35U	0.33U	0.41U	0.36U	0.36U	0.34U	0.33U	0.34U	0.33U	0.35U	0.36U	0.47U
gamma-Chlordane			0.35U	0.33U	0.41U	0.36U	0.36U	0.34U	0.33U	0.34U	0.33U	0.35U	0.36U	0.47U
Heptachlor epoxide (B)			0.35U	0.33U	0.41U	0.36U	0.36U	0.34U	0.33U	0.34U	0.33U	0.35U	0.36U	0.47U
Technical Chlordane			3.5U	3.3U	4.1U	3.6U	3.6U	3.4U	3.3U	3.4U	3.3U	3.5U	3.6U	4.7U
Metals														
Antimony			72U	69U	84U	70U	120	77U	60UN	64UN	59UN	76U	65UN	110UN
Arsenic	9,790	33,000	3,400	3,000	5,700	3,600	4,000	3,200	12,000	4,200	5,700	4,100	3,200	9,600
Cadmium	990	4,980	37	28	160	39	130	74	56	39	35	49	32	630
Chromium	43,400	111,000	4,200	6,900	8,200	6,000	7,300	8,800	5,600	4,700	5,000	6,100	5,100	14,000
Lead	35,800	128,000	4,800	3,900	8,800	3,300	7,500	6,800	5000*	4200*	5300*	5,000	3500*	19000*
Manganese			51,000	51,000	140,000	62,000	120,000	60,000	110,000	76,000	68,000	86,000	59,000	230,000
Mercury			2.1J	1.7J	10	2.8J	10	3.7J	3.7J	1.9J	1.6J	3.1J	2.6J	30
Nickel	22,700	48,600	2,600	3,200	3,700	3,100	3,400	3,200	4,100E*	2,900E*	3,000E*	3,300E*	2,900E*	7,200E*
Vanadium			5,000	5,900	7,800	6,300	6,600	5,900	6,600	5,500	6,600	6,100	5,800	12,000

Notes:
Results in parts per million (ug/kg)
E- Indicates an estimated value above the calibration range of the instrument
J- Indicates an estimated value less than the practical quantitation limit
N- Indicated a spiked sample recovery not within control limits
P- ICP-AES
U- indicates constituents are non detected
*Indicated analysis not within quality control limits
See Figure 5-2 for 2004 Supplemental Sediment Investigation Locations
TEC= Threshold Effects Concentration
PEC= Probable Effects Concentration
TEC/PEC values from MacDonald et al., 2000.
Bold Values represent TCE exceedences
Bold and Underlined values represent PCE exceedences

Table 5-9
2006 Sediment Sampling Analytical Data
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			DEP-1	DEP-1	DEP-1	DEP-1	DEP-2	DEP-2	DEP-2	DEP-4	DEP-4	DEP-4	DEP-5	DEP-5	DEP-5	DEP-5 (EPA)	DEP-5	DEP-8	DEP-8	DEP-8	DEP-8 (EPA)	DEP-10	DEP-11	DEP-11	DEP-11	DEP-11	SD-2	SD-2	SD-2	SD-9	SD-9	SD-9	SD-9	SD-14	
Sample Depth (inches):			0-6	6-12	12-24	24-34	0-6	6-12	12-18	0-6	6-12	12-24	0-6	6-12	12-24	12-24	24-30	0-6	6-12	12-19	12-19	0-7	0-6	6-12	12-24	24-36	0-6	6-12	12-24	0-6	6-12	12-24	24-33	0-6	
Date Collected:	TEC	PEC	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006		
Semivolatile Organics																																			
2-Methylnaphthalene			560U	440U	450U		440U	380U	520U	430U	450U	510U	540U	610U	490U			560U	490U	550U			430U	420U	760UJ	430U		420UJ	400U	400U	340U	350U	380U		340U
Acenaphthene			560U	24J	450U		440U	380U	520U	430U	450U	510U	33J	610U	490U			560U	490U	550U			430U	420U	760UJ	430U		420UJ	400U	400U	340U	350U	380U		340U
Acenaphthylene			44J	72J	37J		440U	380U	65J	29J	28J	27J	380J	77J	120J			560U	490U	76J			430U	420U	50J	27J		420UJ	400U	400U	20J	350U	380U		340U
Anthracene	57.2	845	32J	78J	38J		440U	31J	75J	52J	25J	510U	240J	79J	87J			47J	42J	56J			430U	420U	49J	22J		420UJ	31J	29J	340U	350U	380U		40J
Benzo(a)anthracene	108	1,050	170J	320J	170J		93J	110J	220J	180J	100J	90J	120J	480J	370J			210J	180J	260J			62J	65J	270J	130J		74J	110J	160J	78J	58J	48J		170J
Benzo(a)pyrene	150	1,450	200J	320J	180J		96J	96J	230J	180J	110J	100J	1400	610	390J			230J	210J	280J			65J	68J	340J	130J		64J	90J	140J	84J	55J	51J		160J
Benzo(b)fluoranthene			300J	450	250J		120J	120J	290J	240J	150J	130J	1900	1000	580			400J	240J	480J			73J	87J	460J	160J		82J	160J	250J	140J	68J	67J		240J
Benzo(g,h,i)perylene			110J	230J	130J		50J	49J	120J	120J	75J	68J	620	280J	170J			120J	110J	210J			56J	48J	220J	100J		30J	46J	64J	62J	40J	38J		120J
Benzo(k)fluoranthene			95J	140J	77J		42J	47J	110J	80J	47J	41J	640	300J	150J			420J	97J	440J			48J	30J	150J	72J		32J	170J	260J	140J	28J	26J		250J
Chrysene	166	1,290	210J	330J	180J		100J	110J	250J	180J	110J	100J	1200	640	360J			260J	220J	260J			87J	71J	320J	140J		78J	110J	160J	79J	56J	56J		180J
Dibenz(a,h)anthracene	33		32J	66J	37J		440U	380U	35J	37J	28J	510U	190J	86J	52J			36J	36J	72J			430U	420U	72J	29J		420UJ	400U	20J	340U	350U	380U		30J
Fluoranthene	423	2,230	380J	730	390J		200J	240J	500J	390J	220J	190J	2000	1200	760			490J	440J	530J			140J	130J	640J	270J		160J	250J	330J	160J	110J	100J		350
Fluorene	77.4	536	560U	40J	450U		440U	380U	31J	27J	450U	510U	77J	42J	35J			560U	490U	30J			430U	420U	760UJ	430U		420UJ	400U	400U	340U	350U	380U		340U
Indeno(1,2,3-c,d)pyrene			110J	210J	120J		46J	48J	110J	110J	74J	66J	620	290J	170J			120J	100J	190J			45J	45J	220J	93J		28J	42J	64J	53J	36J	36J		98J
Naphthalene	176	561	560U	440U	450U		440U	380U	520U	430U	450U	510U	540U	610U	490U			560U	490U	550U			430U	420U	760UJ	430U		420UJ	400U	400U	340U	350U	380U		340U
Phenanthrene	204	1,170	180J	470	230J		85J	160J	330J	250J	140J	100J	730	550J	310J			240J	220J	310J			87J	78J	310J	140J		100J	180J	170J	95J	61J	53J		180J
Pyrene	195	1,520	300J	590	320J		160J	180J	420J	320J	190J	170J	1700	880	620			410J	370J	470J			140J	110J	500J	220J		130J	190J	220J	140J	87J	82J		310J
PCBs																																			
Aroclor 1016			30.3U	26.6U	27.3U	26.3U	28U	39.6U	28.7U	22.1U	22U	22U	22U	23.4U	27.8U	29UJ		28.6U	33.7U	26.3U	27.9U	28U	24U	23.7U	42UJ	23.8U	28.2U	22.9U	23.1U	22.5U	20.3U	20.5U	21.2U	22.7U	20U
Aroclor 1221			30.3U	26.6U	27.3U	26.3U	28U	39.6U	28.7U	22.1U	22U	22U	22U	23.4U	27.8U	29UJ		28.6U	33.7U	26.3U	27.9U	28U	24U	12.6J	42UJ	19.4J	28.2U	11.5J	23.1U	22.5U	6.14J	8.57J	21.2U	17.4J	20U
Aroclor 1232			30.3U	26.6U	27.3U	26.3U	28U	39.6U	28.7U	22.1U	22U	22U	22U	23.4U	27.8U	29UJ		28.6U	33.7U	26.3U	27.9U	28U	24U	23.7U	42UJ	23.8U	28.2U	22.9U	23.1U	22.5U	20.3U	20.5U	21.2U	22.7U	20U
Aroclor 1242			81.8	50.1	27.3U	26.3U	28U	39.6U	340	22.1U	171	185	22U	23.4U	27.8U	29UJ		28.6U	33.7U	26.3U	27.9U	28U	24U	23.7U	27.3J	23.8U	28.2U	22.9U	23.1U	22.5U	20.3U	20.5U	21.2U	22.7U	13.6J
Aroclor 1248			30.3U	26.6U	102	26.3U	18.6J	26.9J	28.7U	76.9	22U	22U	24.8	68.5	500	550J		336	20.8J	19.4J	56.8	28U	24U	23.7U	42UJ	23.8U	28.2U	22.9U	23.1U	22.5U	20.3U	20.5U	21.2U	22.7U	20U
Aroclor 1254			30.3U	26.6U	27.3U	26.3U	28U	39.6U	60.7	22.1U	22U	22U	22U	23.4U	27.8U	29UJ		28.6U	33.7U	26.3U	27.9U	28U	24U	23.7U	42UJ	23.8U	11.1J	22.9U	23.1U	22.5U	20.3U	20.5U	21.2U	22.7U	20U
Aroclor 1260			30.3U	26.6U	27.3U	26.3U	28U	39.6U	28.7U	22.1U	22U	22U	22U	23.4U	27.8U	29UJ		36	33.7U	26.3U	27.9U	28U	24U	23.7U	42UJ	23.8U	28.2U	22.9U	23.1U	22.5U	20.3U	20.5U	21.2U	22.7U	20U
Total PCBs	59.8	676	81.8	50.1	102	26.3U	18.6J	26.9J	400.7	76.9	171	185	24.8	68.5	500	660J		372	20.8J	19.4J	56.8	92J	24U	12.6J	27.3J	19.4J	11.1J	11.5J	23.1U	22.5U	6.14J	8.57J	21.2U	17.4J	13.6J
Pesticides																																			
4,4'- DDE	3																																		

Table 5-9
2006 Sediment Sampling Analytical Data
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			SD-14 (EPA)	SD-14	SD-14	SD-18	SD-18	SD-18 (EPA)	SD-18	SD-18 DUP-5	SD-18	SD-26	SD-26	SD-27	SD-27 (EPA)	SD-27	SD-27 (EPA)	SD-27 RE	SD-27 RE	SD-27 RE2	SED-02A	SED-02A (EPA)	SED-11	SED-11	SED-11	SED-11	T1-1-A	T-1-4	T-1-4	T-1-4 (EPA)	T-2-8	T-2-8 (EPA)	
Sample Depth (inches):			0-6	6-12	12-24	0-6	6-12	6-12	12-24	12-24	24-36	0-6	6-10	0-6	0-6	6-13	6-13	6-13	6-13	6-13	0-7	0-7	0-6	6-12	12-24	24-39	0-7	0-6	6-10	6-10	0-5	0-5	
Date Collected:	TEC	PEC	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006		
Semivolatile Organics																																	
2-Methylnaphthalene				340UJ	350UJ	350U	350U		360U	360U		380U	380U	400U		430U						420U		350U	340UJ	340U		370U	420U	420U		37J	
Acenaphthene				340UJ	350UJ	350U	350U		360U	360U		380U	380U	400U		430U						420U		350U	340UJ	340U		20J	420U	420U		35J	
Acenaphthylene				340UJ	350UJ	24J	350U		360U	360U		380U	380U	21J		39J						27J		350U	340UJ	340U		95J	420U	420U		74J	
Anthracene	57.2	845		340UJ	350UJ	350U	350U		360U	360U		380U	380U	58J		61J						22J		350U	340UJ	340U		110J	420U	420U		130J	
Benzo(a)anthracene	108	1,050		35J	55J	82J	35J		54J	30J		380U	35J	190J		300J						91J		33J	33J	21J		560	58J	83J		490	
Benzo(a)pyrene	150	1,450		26J	44J	91J	32J		53J	28J		380U	37J	200J		450						95J		22J	24J	340U		580	57J	77J		480	
Benzo(b)fluoranthene				30J	53J	110J	58J		83J	36J		20J	55J	360J		550						130J		46J	27J	19J		860	64J	130J		890	
Benzo(g,h,i)perylene				19J	29J	65J	25J		38J	20J		380U	22J	100J		290J						57J		18J	340UJ	340U		340J	38J	58J		340J	
Benzo(k)fluoranthene				340UJ	23J	37J	61J		87J	360U		380U	50J	330J		170J						37J		350U	18J	340U		190J	28J	140J		820	
Chrysene	166	1,290		30J	55J	86J	36J		54J	32J		380U	28J	180J		300J						92J		38J	31J	19J		530	65J	98J		480	
Dibenz(a,h)anthracene	33			340UJ	350UJ	19J	350U		360U	360U		380U	380U	32J		89J						420U		350U	340UJ	340U		100J	420U	420U		100J	
Fluoranthene	423	2,230		72J	130J	160J	61J		90J	52J		24J	45J	420		520						180J		82J	62J	34J		1200	130J	160J		1000	
Fluorene	77.4	536		340UJ	350UJ	350U	350U		360U	360U		380U	380U	400U		35J						420U		350U	340UJ	340U		46J	420U	420U		70J	
Indeno(1,2,3-c,d)pyrene				340UJ	30J	60J	22J		35J	18J		380U	19J	97J		280J						54J		350U	340UJ	340U		330J	32J	56J		320J	
Naphthalene	176	561		340UJ	350UJ	350U	350U		360U	360U		380U	380U	400U		430U						420U		350U	340UJ	340U		24J	420U	420U		59J	
Phenanthrene	204	1,170		48J	82J	88J	36J		52J	41J		380U	33J	210J		240J						85J		53J	38J	22J		610	81J	76J		630	
Pyrene	195	1,520		64J	91J	140J	55J		80J	46J		22J	54J	300J		410J						150J		63J	50J	27J		920	110J	160J		820	
PCBs																																	
Aroclor 1016				20U	20.2U	21.4U	20.4U	21U	21U	22.1U	21.2U	21.8U	66.4U	45.7U	91.8U	23U	8000U	27U	7900UJ	26UJ	0UR	465U	23U	20.7U	20.7U	20.1U	20.9U	23.6U	20.8U	20.2U	25U	26.7U	27U
Aroclor 1221				20U	20.2U	21.4U	20.4U	21U	21U	22.1U	21.2U	71.4	982	770	91.8U	23U	141000	27U	150000J	26UJ	120000J	8690	23U	178	90.2	20.1U	33.3	23.6U	20.8U	600	25U	26.7U	27U
Aroclor 1232				20U	20.2U	21.4U	20.4U	21U	21U	22.1U	21.2U	21.8U	66.4U	45.7U	91.8U	1000	8000U	420000J	7900UJ	290000J	0UR	465U	13000	20.7U	20.7U	20.1U	20.9U	23.6U	20.8U	20.2U	770	26.7U	27U
Aroclor 1242				20U	20.2U	21.4U	20.4U	21U	21U	22.1U	21.2U	58.4	66.4U	45.7U	91.8U	23U	25600	610000J	42000J	370000J	22000J	6170	26000	56	40.4	20.1U	10.4J	23.6U	20.8U	687	1600	379	27U
Aroclor 1248				20U	20.2U	21.4U	20.4U	18.8J	21U	52.1	45.4	21.8U	937	610	1460	1800	8000U	27U	7900UJ	26UJ	0UR	465U	23U	20.7U	20.7U	261	20.9U	25.3	48.3	20.2U	25U	26.7U	410
Aroclor 1254				20U	20.2U	21.4U	20.4U	21U	21U	22.1U	21.2U	21.8U	66.4U	45.7U	91.8U	23U	8000U	27U	7900UJ	26UJ	0UR	465U	23U	20.7U	20.7U	20.1U	20.9U	23.6U	20.8U	82	25U	125	27U
Aroclor 1260				20U	20.2U	21.4U	20.4U	21U	21U	22.1U	21.2U	21.8U	66.4U	45.7U	91.8U	23U	8000U	27U	7900UJ	26UJ	0UR	465U	23U	20.7U	20.7U	20.1U	20.9U	23.6U	20.8U	20.2U	25U	26.7U	27U
Total PCBs	59.8	676		5.1J	20.2U	21.4U	20.4U	18.8J	12J	52.1	45.4	129.8	1919	1380	1460	2500J	166600	170000J	190000J	180000J	140000J	14860	11000J	234	130.6	261	43.7J	25.3	48.3	1369	1100J	504	520J
Pesticides																																	
4,4'- DDE	3.16	31.3		3.4U	0.71J	0.96R	1.1R		1R	1R		4.2R	7.8U	20R		210U						150R		3.5UJ	3.4UJ	3.4UJ		1.5R	4.1UJ	4.1U		2.4R	
4,4'- DDT	4.16	62.9		0.93J	1J	2JN	1.5JN		1.6JN	3.6U		7.6UJ	7.8UJ	39UJ		210UJ						420UJ		3.5UJ	3.4UJ	3.4UJ		3.8U	4.1UJ	4.1U		2.9JN	
4,4'-DDD	4.88	28		3.4U	0.54J	3.5U	3.5U		3.7U	3.6U		7.6U	7.8U	39U		210U						420U		3.5U	3.4U	3.4U		3.8UJ	4.1UJ	4.1U		2.5JN	
Aldrin				1.8UJ	0.75J	1.8U	1.8U		1.9U	1.9U		3.9U	1.8JN	20U		110U						220U		1.8U	1.8U	1.7U		1.9U	2.1UJ	2.1U		2.3U	
Alpha-BHC				1.8U	0.82J																												

Table 5-9
2006 Sediment Sampling Analytical Data
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			T-4-1-A	T-4-1-A	T-4-1-A	T-4-1-A	T4-4A	T4-4A	T-6-2	T-6-8	T-6-8	T-6-8	T-7-8	T-7-8	T-7-8	T-8-7-A	T-8-7-A	T-9-4	T-9-4	T-9-4	T-9-4 DUP-1	T-9-7-A	T-9-7-A	T-9-7-A	T-9-7-A	T-9-7-A	T-10-6	T-10-6	T-10-6	T-10-6 DUP-2	T-10-6	T-10-6 (EPA)	T-11-7-A	T-11-7-A
Sample Depth (inches):			0-6	6-12	12-24	24-38	0-6	6-10	0-6	0-6	6-12	12-24	0-6	6-12	12-19	0-6	6-12	0-6	6-12	12-24	12-24	0-6	6-12	12-24	24-36	36-45	0-6	6-12	12-24	12-24	24-38	24-38	0-6	6-12
Date Collected:		TEC	PEC	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/27/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/25/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006
Semivolatile Organics																																		
2-Methylnaphthalene			420U	430U	460U		340U	340U	330U	430U	440U	470U	410U	440U	460U	430U	400U	390U	360U	380U	380U	500U	520U	500U			340U	330U	380U	360U			610U	370U
Acenaphthene			22J	29J	460U		340U	340U	330U	430U	440U	470U	410U	440U	460U	430U	400U	390U	360U	380U	380U	500U	520U	500U			340U	330U	380U	360U			610U	370U
Acenaphthylene			41J	48J	55J		340U	340U	330U	25J	440U	470U	28J	440U	460U	430U	400U	390U	360U	380U	380U	43J	49J	27J			340U	330U	380U	360U			610U	370U
Anthracene	57.2	845	52J	87J	30J		340U	340U	330U	23J	440U	27J	39J	29J	460U	35J	400U	390U	360U	380U	380U	50J	57J	37J			340U	330U	380U	360U			610U	370U
Benzo(a)anthracene	108	1,050	200J	310J	150J		340U	340U	39J	120J	73J	80J	180J	130J	66J	150J	82J	52J	360U	380U	380U	210J	160J	130J			32J	21J	31J	71J			97J	370U
Benzo(a)pyrene	150	1,450	210J	320J	180J		340U	340U	30J	120J	76J	79J	180J	130J	65J	140J	72J	42J	360U	380U	380U	240J	180J	130J			28J	330U	22J	66J			91J	370U
Benzo(b)fluoranthene			300J	430	260J		20J	20J	51J	170J	100J	140J	230J	170J	76J	220J	120J	48J	23J	380U	380U	340J	250J	180J			38J	17J	50J	92J			160J	370U
Benzo(g,h,i)perylene			150J	230J	120J		340U	340U	330U	74J	42J	43J	86J	62J	49J	92J	46J	32J	360U	380U	380U	130J	90J	65J			340U	330U	380U	30J			47J	370U
Benzo(k)fluoranthene			87J	150J	74J		340U	340U	54J	47J	25J	130J	79J	66J	27J	230J	120J	390U	24J	380U	380U	100J	68J	51J			340U	330U	53J	24J			170J	370U
Chrysene	166	1,290	210J	310J	170J		340U	340U	32J	110J	66J	65J	200J	160J	70J	160J	90J	49J	360U	380U	380U	230J	170J	120J			38J	22J	30J	64J			100J	370U
Dibenz(a,h)anthracene	33		42J	64J	37J		340U	340U	330U	24J	440U	470U	25J	440U	460U	27J	400U	390U	360U	380U	380U	38J	27J	500U			340U	330U	380U	360U			610U	370U
Fluoranthene	423	2,230	450	710	350J		24J	25J	86J	250J	140J	150J	410	290J	120J	300J	170J	79J	27J	380U	380U	490J	370J	250J			57J	30J	56J	140J			180J	23J
Fluorene	77.4	536	28J	41J	460U		340U	340U	330U	430U	440U	470U	410U	440U	460U	430U	400U	390U	360U	380U	380U	28J	28J	500U			340U	330U	380U	360U			610U	370U
Indeno(1,2,3-c,d)pyrene			130J	200J	110J		340U	340U	330U	69J	42J	44J	84J	58J	41J	81J	40J	26J	360U	380U	380U	120J	87J	61J			340U	330U	380U	31J			46J	370U
Naphthalene	176	561	420U	430U	460U		340U	340U	330U	430U	440U	470U	410U	440U	460U	430U	400U	390U	360U	380U	380U	500U	520U	500U			340U	330U	380U	360U			610U	370U
Phenanthrene	204	1,170	300J	450	180J		340U	19J	38J	120J	87J	110J	230J	160J	65J	210J	100J	46J	22J	380U	380U	290J	240J	160J			38J	18J	32J	68J			82J	370U
Pyrene	195	1,520	380J	570	310J		19J	23J	60J	210J	120J	120J	330J	240J	120J	280J	140J	87J	25J	380U	380U	400J	320J	210J			46J	26J	43J	110J			140J	20J
PCBs																																		
Aroclor 1016			25U	24.6U	28.4U	26.3U	21.2U	21.4U	20.1U	26.1U	26.5U	26.9U	28.4U	37.8U	29.8U	22U	21.9U	25.3U	26.4U	27.6U	23.4U	27.5U	31.8U	36.5U	27.6U	23.4U	22.9U	25.4U	26.2U	23.2U	21.4U	21U	29.5U	24.4U
Aroclor 1221			25U	24.6U	28.4U	26.3U	21.2U	21.4U	20.1U	26.1U	26.5U	26.9U	28.4U	37.8U	29.8U	22U	21.9U	25.3U	26.4U	27.6U	23.4U	27.5U	31.8U	36.5U	27.6U	23.4U	22.9U	25.4U	26.2U	23.2U	21.4U	21U	29.5U	24.4U
Aroclor 1232			25U	24.6U	28.4U	26.3U	21.2U	21.4U	20.1U	26.1U	26.5U	26.9U	28.4U	37.8U	29.8U	22U	21.9U	25.3U	26.4U	27.6U	23.4U	27.5U	31.8U	36.5U	27.6U	23.4U	22.9U	25.4U	26.2U	23.2U	21.4U	21U	29.5U	24.4U
Aroclor 1242			25U	24.6U	28.4U	26.3U	11J	8.35J	20.1U	26.1U	26.5U	26.9U	28.4U	37.8U	29.8U	22U	21.9U	25.3U	26.4U	27.6U	23.4U	80.5	255	190	27.6U	23.4U	14.3J	29.7	26.2U	23.2U	21.4U	21U	115	220
Aroclor 1248			27.1	52.2	18J	26.3U	21.2U	21.4U	20.1U	66.6	120	26.9U	27.7J	76.9	31.1	67	15.6J	26.2	16J	27.6U	23.4U	27.5U	31.8U	36.5U	27.6U	23.4U	22.9U	25.4U	397	509	636	310	29.5U	24.4U
Aroclor 1254			25U	24.6U	28.4U	26.3U	21.2U	21.4U	20.1U	26.1U	26.5U	26.9U	28.4U	37.8U	29.8U	22U	21.9U	25.3U	26.4U	27.6U	23.4U	27.5U	31.8U	36.5U	27.6U	23.4U	22.9U	25.4U	26.2U	23.2U	21.4U	21U	29.5U	24.4U
Aroclor 1260			25U	24.6U	28.4U	26.3U	21.2U	21.4U	20.1U	26.1U	26.5U	26.9U	28.4U	37.8U	29.8U	22U	21.9U	25.3U	26.4U	27.6U	23.4U	27.5U	31.8U	36.5U	27.6U	23.4U	22.9U	25.4U	26.2U	23.2U	21.4U	21U	29.5U	24.4U
Total PCBs	59.8	676	27.1	52.2	18J	26.3U	11J	8.35J	20.1U	66.6	120	26.9U	27.7J	76.9	31.1	67	15.6J	26.2	16J	27.6U	23.4U	80.5	255	190	27.6U	23.4U	14.3J	29.7	397	509	636	490J	115	

Table 5-9
2006 Sediment Sampling Analytical Data
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			T-11-7-A (EPA)	T-11-7-A	T-11-7-A DUP-3	T-12-1	T-12-1	T-12-1	T-13-1-A	T-13-1-A	T-13-1-A	T-13-4	T-14-1-A	T-14-1-A	T-14-1-A	T-14-1-A (EPA)	T-14-1-A	T-14-1-A (EPA)	T-14-1-A	T-14-8	T-14-8	T-14-8	T-15-1-A	T-15-1-A	T-15-1-A (EPA)	T-15-1-A	T-15-6	T-15-6	T-15-6	T-15-6 (EPA)	T-15-6 DUP-6
Sample Depth (inches):			6-12	12-21	12-21	0-6	6-12	12-18	0-6	6-12	12-27	0-7	0-6	6-12	12-24	12-24	24-36	24-36	36-43	0-6	6-12	12-23	0-6	6-12	6-12	12-24	0-6	6-12	12-24	12-24	12-24
Date Collected:	TEC	PEC	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	
Semivolatile Organics																															
2-Methylnaphthalene				380U	380U	480U	460U	420U	500U	670UJ	550U	360U	460U	400U	430U					440UJ	410UJ	440UJ	380U	390UJ		370UJ	340U	340U	400U		380U
Acenaphthene				380U	380U	480U	460U	420U	500U	670UJ	550U	360U	460U	400U	430U					440UJ	410UJ	440UJ	380U	390UJ		370UJ	340U	340U	400U		380U
Acenaphthylene				380U	380U	480U	460U	420U	72J	85J	550U	360U	460U	400U	32J					440UJ	410UJ	440UJ	380U	390UJ		370UJ	340U	340U	400U		380U
Anthracene	57.2	845		380U	380U	29J	460U	420U	51J	78J	550U	360U	41J	400U	72J					440UJ	410UJ	440UJ	380U	390UJ		370UJ	340U	22J	400U		380U
Benzo(a)anthracene	108	1,050		380U	28J	150J	47J	420U	250J	280J	64J	41J	170J	81J	230J					52J	410UJ	440UJ	380U	38J		370UJ	45J	70J	21J		46J
Benzo(a)pyrene	150	1,450		380U	20J	140J	41J	420U	260J	330J	70J	42J	170J	77J	210J					44J	410UJ	440UJ	380U	32J		370UJ	42J	56J	400U		35J
Benzo(b)fluoranthene				380U	36J	180J	51J	420U	490J	550J	98J	56J	230J	120J	250J					72J	410UJ	440UJ	380U	50J		370UJ	58J	68J	23J		62J
Benzo(g,h,i)perylene				380U	380U	110J	36J	420U	110J	140J	56J	26J	100J	42J	98J					37J	410UJ	440UJ	380U	390UJ		370UJ	32J	40J	400U		26J
Benzo(k)fluoranthene				380U	38J	65J	460U	420U	100J	130J	33J	360U	79J	130J	81J					76J	410UJ	440UJ	380U	52J		370UJ	19J	30J	400U		65J
Chrysene	166	1,290		380U	24J	170J	48J	420U	300J	310J	73J	42J	200J	91J	230J					44J	410UJ	440UJ	380U	36J		370UJ	54J	68J	22J		40J
Dibenz(a,h)anthracene	33			380U	380U	34J	460U	420U	34J	42J	550U	360U	28J	400U	32J					440UJ	410UJ	440UJ	380U	390UJ		370UJ	340U	340U	400U		380U
Fluoranthene	423	2,230		25J	41J	310J	86J	420U	740	620J	130J	92J	380J	150J	460					65J	410UJ	440UJ	26J	78J		370UJ	110J	170J	49J		83J
Fluorene	77.4	536		380U	380U	480U	460U	420U	500U	38J	550U	360U	460U	400U	430U					440UJ	410UJ	440UJ	380U	390UJ		370UJ	340U	340U	400U		380U
Indeno(1,2,3-c,d)pyrene				380U	380U	100J	28J	420U	110J	130J	48J	25J	94J	38J	93J					31J	410UJ	440UJ	380U	390UJ		370UJ	26J	34J	400U		23J
Naphthalene	176	561		380U	380U	480U	460U	420U	500U	670UJ	550U	360U	460U	400U	430U					440UJ	410UJ	440UJ	380U	390UJ		370UJ	340U	340U	400U		380U
Phenanthrene	204	1,170		380U	380U	160J	46J	420U	300J	360J	71J	60J	230J	68J	270J					22J	410UJ	440UJ	20J	57J		370UJ	58J	110J	28J		55J
Pyrene	195	1,520		380U	31J	280J	84J	420U	500J	470J	120J	77J	330J	140J	390J					69J	410UJ	440UJ	21J	62J		370UJ	94J	130J	39J		72J
PCBs																															
Aroclor 1016			22UJ	25.7U	22.6U	28U	24.1U	23.4U	24.1U	25.2U	27.7U	23U	38.2U	22.4U	22.8U	26U	22.9U	23U	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	23U	23.2U	40U	41.3U	21.8U	22U	2140U
Aroclor 1221			22UJ	25.7U	22.6U	28U	24.1U	23.4U	24.1U	25.2U	27.7U	23U	38.2U	22.4U	22.8U	26U	22.9U	23U	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	23U	23.2U	40U	41.3U	21.8U	22U	2140U
Aroclor 1232			22UJ	25.7U	22.6U	28U	24.1U	23.4U	24.1U	25.2U	27.7U	23U	38.2U	22.4U	22.8U	26U	22.9U	23U	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	23U	23.2U	40U	41.3U	21.8U	22U	2140U
Aroclor 1242			22UJ	39.2	22.6U	28U	24.1U	23.4U	24.1U	25.2U	27.7U	36.9	37.5J	40.1	263	26U	18.1J	23U	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	23U	23.2U	58J	41.3U	21.8U	22U	2140U
Aroclor 1248			22UJ	25.7U	14J	13.8J	24.1U	23.4U	34.9	87.5	383	23U	38.2U	22.4U	22.8U	26U	22.9U	23U	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	23U	23.2U	40U	683	334J	340J	33500J
Aroclor 1254			22UJ	25.7U	22.6U	28U	24.1U	23.4U	24.1U	25.2U	27.7U	23U	38.2U	22.4U	22.8U	26U	22.9U	23U	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	23U	23.2U	40U	41.3U	21.8U	22U	2140U
Aroclor 1260			22UJ	25.7U	22.6U	28U	24.1U	23.4U	24.1U	25.2U	27.7U	23U	38.2U	22.4U	22.8U	26U	22.9U	23U	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	23U	23.2U	40U	41.3U	21.8U	22U	2140U
Total PCBs	59.8	676	180J	39.2	14J	13.8J	24.1U	23.4U	34.9	87.5	383	36.9	37.5J	40.1	263	310J	18.1J	6.2	26.6U	25.4U	24.5U	24.5U	22.4U	22.9U	2.7U	23.2U	58J	683	334J	340J	33500J
Pesticides																															
4,4'- DDE	3.16	31.3		3.9U	19U	3.7R	2.4R	4.1U	4R	9.1R	7.3R	2.7R	4.6U	4.1U	4.2U					4.5U	4.2U	4.4U	3.8U	4U		3.7UJ	20	22	3.6J		2.1J
4,4'- DDT	4.16	62.9		2.6JN	36JN	6.4N	4.4JN	4.1U	5.7JN	8.4JN	6.9JN	3.6UJ	4.6U	4.1U	4.2U					2.9JN	4.2U	4.4U	3.8U	4U		3.7UJ	17U	17U	8U		3.9U
4,4'-DDD	4.88	28		1.2J	19U	2.7J	4.6U	4.1U	3J	4.7J	4.4J	3.6U	4.6U	4.1U	4.2U					4.5U	4.2U	4.4U	3.8U	4U		3.7U	17U	17U	8U		3.9U
Aldrin				2U	9.7U	2.5U	2.4U	2.1U																							

Table 5-9
2006 Sediment Sampling Analytical Data
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			T-15-6 DUP-6 (EPA)	T-15-6	T-15-6 (EPA)	T-15-6 DUP	T-15-6 DUP	T-15-6 Dup RE	T-15-6 Dup RE	T-15-6 RE	T-15-6 RE	T-15-6 RE2	T-15-6 Dup RE2	T-15-7-A	T-15-7-A (EPA)	T-15-7-A DUP-4	T-15-7-A DUP-4 (EPA)	T-15-7-A	T-15-7-A (EPA)	T-15-7-A	T-15-7-A (EPA)	T-15-7-A	T-15-7-A (EPA)	T-15-7-A	T-15-7-A (EPA)	T-15-7-A	T-15-7-A (EPA)	T-15-7-A	T-16-1
Sample Depth (inches):			12-24	24-33	24-33	24-33	24-33	12-24	12-24	12-24	12-24	12-24	12-24	0-6	0-6	0-6	0-6	6-12	6-12	12-24	12-24	24-36	24-36	36-48	36-48	48-56	0-6		
Date Collected:	TEC	PEC	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/26/2006		
Semivolatile Organics																													
2-Methylnaphthalene														380U		370U		390U		420U								380U	
Acenaphthene														380U		370U		390U		420U								380U	
Acenaphthylene														380U		370U		390U		420U								380U	
Anthracene	57.2	845												380U		370U		390U		420U								380U	
Benzo(a)anthracene	108	1,050												96J		82J		84J		94J								45J	
Benzo(a)pyrene	150	1,450												86J		71J		78J		94J								42J	
Benzo(b)fluoranthene														94J		90J		96J		120J								44J	
Benzo(g,h,i)perylene														58J		45J		56J		65J								28J	
Benzo(k)fluoranthene														39J		35J		35J		40J								380U	
Chrysene	166	1,290												91J		80J		92J		110J								46J	
Dibenz(a,h)anthracene	33													380U		370U		390U		420U								380U	
Fluoranthene	423	2,230												190J		140J		180J		200J								90J	
Fluorene	77.4	536												380U		370U		390U		420U								380U	
Indeno(1,2,3-c,d)pyrene														48J		42J		52J		57J								24J	
Naphthalene	176	561												380U		370U		390U		420U								380U	
Phenanthrene	204	1,170												95J		60J		110J		99J								70J	
Pyrene	195	1,520												160J		120J		190J		180J								84J	
PCBs																													
Aroclor 1016			21U	112U	22U	44U	22U	640UJ	20UJ	22UJ	21UJ	0UR	0UR	21.6U	22U	43U		22U	45.2U	23U	1190U	24U	896U	22U	2380U	24U	1000U	22.8U	
Aroclor 1221			21U	112U	22U	44U	22U	640UJ	20UJ	22UJ																			

Table 5-9
2006 Sediment Sampling Analytical Data
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Sample ID:			T-16-1	T-16-1	T-16-6-A	T-16-6-A	T-16-6-A	T-17-1-A	T-17-1-A	T-17-7	T-17-7	T-17-7	T-20-7-A	T-20-7-A (EPA)	T-20-7-A	T-20-7-A (EPA)	T-20-7-A	T-20-7-A (EPA)	T-20-7-A DUP-7	T-20-7-A DUP-7 (EPA)	T-22-3	T-22-3	T-22-3	T-22-3	T-22-3	T-22-3
Sample Depth (inches):			6-12	12-18	0-6	6-12	12-25	0-6	6-14	0-6	6-12	12-26	0-6	0-6	6-12	6-12	12-24	12-24	12-24	12-24	0-6	6-12	12-24	24-36	36-48	48-56
Date Collected:	TEC	PEC	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/26/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	7/27/2006	
Semivolatile Organics																										
2-Methylnaphthalene			360U	450U	340U	340U	370UJ	410U	400U	510U	540U	420U	570U		570U		440U		450U		420U	480U	430U			
Acenaphthene			360U	450U	340U	340U	370UJ	410U	400U	43J	540U	420U	570U		570U		440U		34J		420U	480U	430U			
Acenaphthylene			360U	450U	340U	340U	370UJ	410U	400U	510U	540U	420U	570U		570U		440U		450U		420U	480U	31J			
Anthracene	57.2	845	360U	450U	340U	25J	370UJ	410U	400U	62J	540U	420U	54J		83J		42J		86J		420U	480U	44J			
Benzo(a)anthracene	108	1,050	360U	450U	82J	80J	46J	32J	400U	170J	48J	64J	270J		260J		180J		280J		92J	120J	190J			
Benzo(a)pyrene	150	1,450	360U	450U	71J	69J	38J	35J	20J	150J	47J	54J	260J		230J		170J		260J		100J	120J	190J			
Benzo(b)fluoranthene			360U	450U	82J	80J	52J	62J	42J	170J	55J	64J	440J		270J		200J		300J		180J	220J	240J			
Benzo(g,h,i)perylene			360U	450U	31J	33J	370UJ	24J	400U	100J	33J	38J	180J		140J		100J		150J		69J	96J	140J			
Benzo(k)fluoranthene			360U	450U	43J	42J	370UJ	58J	39J	74J	540U	26J	460J		110J		80J		120J		180J	240J	94J			
Chrysene	166	1,290	360U	450U	81J	74J	43J	34J	21J	180J	57J	65J	300J		270J		200J		290J		110J	130J	190J			
Dibenz(a,h)anthracene	33		360U	450U	340U	340U	370UJ	410U	400U	27J	540U	420U	45J		38J		30J		41J		420U	480U	50J			
Fluoranthene	423	2,230	360U	450U	150J	190J	88J	62J	37J	410J	110J	130J	650		590		430J		600		190J	250J	390J			
Fluorene	77.4	536	360U	450U	340U	340U	370UJ	410U	400U	510U	540U	420U	570U		570U		440U		30J		420U	480U	430U			
Indeno(1,2,3-c,d)pyrene			360U	450U	29J	31J	370UJ	23J	400U	89J	31J	34J	160J		130J		96J		130J		65J	90J	140J			
Naphthalene	176	561	360U	450U	340U	340U	370UJ	410U	400U	510U	540U	420U	570U		570U		440U		450U		420U	480U	430U			
Phenanthrene	204	1,170	360U	450U	76J	120J	44J	33J	21J	290J	58J	70J	320J		390J		240J		380J		110J	140J	240J			
Pyrene	195	1,520	360U	450U	120J	130J	68J	54J	31J	320J	93J	120J	500J		480J		350J		480		170J	210J	330J			
PCBs																										
Aroclor 1016			21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	26.9U	23.6U	21.7U	27.2U	27U	29.2U	29U	26U	26U	27U	27U	24.8U	27.2U	28.8U	25.2U	28.4U	37.8U
Aroclor 1221			21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	12.6J	14.3J	21.7U	19.3J	27U	20.9J	29U	26U	26U	27U	27U	11J	27.2U	28.8U	26	28.4U	37.8U
Aroclor 1232			21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	26.9U	23.6U	21.7U	27.2U	27U	29.2U	29U	26U	26U	27U	27U	24.8U	27.2U	28.8U	25.2U	28.4U	37.8U
Aroclor 1242			21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	12.8J	23.6U	21.7U	10.8J	27U	11.7J	29U	26U	26U	27U	27U	24.8U	27.2U	28.8U	25.2U	28.4U	37.8U
Aroclor 1248			21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	26.9U	23.6U	21.7U	27.2U	27U	29.2U	29U	10.3J	26U	14.5J	27U	24.8U	29.1	28.8U	25.2U	45.5	155
Aroclor 1254			21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	26.9U	23.6U	21.7U	27.2U	27U	29.2U	29U	26U	26U	27U	27U	24.8U	27.2U	28.8U	25.2U	32.1	84.2
Aroclor 1260			21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	26.9U	23.6U	21.7U	27.2U	27U	29.2U	29U	26U	26U	27U	27U	24.8U	27.2U	28.8U	25.2U	28.4U	37.8U
Total PCBs	59.8	676	21.7U	26U	20U	20.3U	22.4U	23.8U	23.8U	25.4J	14.3J	21.7U	30.1J	8	32.6J	20	10.3J	3.9J	14.5J	17J	11J	29.1	28.8U	26	77.6	239.2
Pesticides																										
4,4'- DDE	3.16	31.3	3.6U	4.5U	3.5U	3.5U	3.7U	0.8J	1.2R	1J	1.1J	4.2U	1.2J		1.2J		0.99J		0.93J		1.2R	1.3R	1.3R			
4,4'- DDT	4.16	62.9	3.6U	4.4JN	1.6JN	2.1JN	2.2JN	4.2U	4U	4.9U	1.6J	4.2U	1.6J		4.9U		1.5J		4.6U		4.2U	4.7U	4.3U			
4,4'-DDD	4.88	28	3.6U	4.5U	3.5U	3.5U	3.7U	4.2U	4U	4.9U	5.4U	4.2U	5.6U		5.8U		0.99J		0.79J		4.2U	4.7U	4.3U			
Aldrin			1.9U	2.3U	1.8U	1.8U	1.9U	2.1UJ	2U	2.5UJ	2.8UJ	2.1UJ	2.9UJ		3UJ		2.3UJ		2.4UJ		2.1U	2.4U	2.2U			
Alpha-BHC			1.9U	2.3U	1.8U	1.8U	1.9U	2.1U	2U	2.5U	2.8U	2.1U	2.9U		3U		2.9U		2.4U		2.1U	2.4U	2.2U			
Beta-BHC			1.9U	2.3U	1.8U	0.6JN	1.9U	2.1U	2U	2.5U	2.8U	2.1U	2.9U		3U		2.9U		2.4U		2.1U	2.4U	2.2U			
Chlordane	3.24	17.6	19U	23U	18U	18U	19U	21U	20UJ	25U	28U	21U	29U		30U		23U		24U		21U	24U	22U			
delta-BHC			1.9U	2.3U	1.8U	1.8U	1.9U	2.1U	2U	2.5U	2.8U	2.1U	2.9U		3U		2.9U		2.4U		2.1U	2.4U	2.2U			
Dieldrin	1.90	61.8	3.6U	4.5U	3.5U	3.5U	3.7U	4.2U	4U	1.2J	5.4U	4.2U	5.6U		5.8U		4.4U		4.6U		4.2U	4.7U	4.3U			
Endosulfan I			1.9U	2.3U	1.8U	1.8U	1.9U	2.1U	2U	2.5U	2.8U	2.1U	2.9U		3U		2.3U		2.4U		2.1U	2.4U	2.2U			
Endosulfan II			3.6U	4.5U	3.5U	3.5U	3.7U	4.2U	4U	1J	5.4U	4.2U	5.6U		5.8U		4.6U		4.6U		4.2U	4.7U	4.3U			
Endosulfan Sulfate			3.6U	4.5U	3.5U	3.5U	3.7U	4.2U	4U	4.9U	5.4U	4.2U	5.6U		5.8U		4.4U		4.6U		4.2U	4.7U	4.3U			
Endrin	2.22	207	3.6U	4.5U	3.5U	3.5U	3.7U	4.2U	4U	1J	5.4U	4.2U	5.6U		5											

APPENDIX B
Table B-1 On-Site Groundwater Data Set
Final Remedial Investigation Report
Operable Unit 2, Fletcher’s Paint Work and Storage Facility
Milford, New Hampshire

Monitoring Well Sampling Date Units		KW01D 4/23/2007 ug/L	Q	KW01S 4/23/2007 ug/L	Q	OW2 4/25/2007 ug/L	Q	OW2P 4/23/2007 ug/L	Q	MW-05A 4/23/2007 ug/L	Q	MW-05A-DUP 4/23/2007 ug/L	Q	MW-05A 7/17/2007 ug/L	Q	MW-05A 10/15/2007 ug/L	Q	MW-05A 1/10/2008 ug/L	Q	MW-05A 4/7/2008 ug/L	Q	MW-05A 7/16/2008 ug/L	Q	MW-05A-DUP 7/16/2008 ug/L	Q	MW-05A 10/8/2008 ug/L	Q	MW-05A 9/29/2009 ug/L	Q	MW-05BR 7/17/2007 ug/L	Q	MW-05BR-DUP 7/17/2007 ug/L	Q	MW-05BR 10/11/2007 ug/L	Q	MW-05BR 1/10/2008 ug/L	Q		
ANALYTE NAME	CAS																																						
VOCS																																							
2-Propanone (Acetone)	67-64-1	2	J	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Methyl-t-Butyl Ether (MTBE)	1634-04-4	49		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Other Detected VOCs		None (2)		None (2)		None (2)		None (2)		None (2)		None (2)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)	
SVOCs																																							
Bis(2-ethylhexyl)phthalate	117-81-7	5	U	5	U	5	U	7	U	5	U	5	U	NA		9	U	NA		NA		NA		NA		NA		9.7	U	NA		NA		NA		10	U	NA	
Butyl benzyl phthalate	85-68-7	5	U	5	U	5	U	7	U	5	U	5	U	NA		9	U	NA		NA		NA		NA		NA		9.7	U	NA		NA		NA		2	J	NA	
Di-n-butylphthalate	84-74-2	5	U	5	U	5	U	7	U	5	U	5	U	NA		9	U	NA		NA		NA		NA		NA		9.7	U	NA		NA		NA		10	U	NA	
Diethyl phthalate	84-66-2	5	U	5	U	5	U	7	U	5	U	5	U	NA		9	U	NA		NA		NA		NA		NA		4.9	U	NA		NA		NA		10	U	NA	
Other Detected SVOCs		None (4)		None (4)		None (4)		None (4)		None (4)		None (4)				None (3)												None (3)								None (3)			
METALS (unfiltered)																																							
Aluminum	7429-90-5	12000		110	U	1200		110	U	110	U	110	U	NA		200	U	NA		NA		NA		NA		NA		100	J	NA		NA		NA		413		NA	
Antimony (5)	7440-36-0	6	U	6	U	6	U	6	U	6	U	6	U	NA		20	U	NA		NA		NA		NA		NA		20	U	NA		NA		NA		20	U	NA	
Arsenic	7440-38-2	11		10	U	10	U	10	U	10	U	10	U	NA		10	U	NA		NA		NA		NA		NA		10	U	NA		NA		NA		10	U	NA	
Barium	7440-39-3	59		20	U	28		20	U	20	U	20	U	NA		18.2		NA		NA		NA		NA		NA		16.8		NA		NA		NA		21.3		NA	
Beryllium (5)	7440-41-7	4	U	4	U	4	U	4	U	4	U	4	U	NA		2	U	NA		NA		NA		NA		NA		2	U	NA		NA		NA		2	U	NA	
Cadmium (5)	7440-43-9	5	U	5	U	5	U	5	U	5	U	5	U	NA		1	U	NA		NA		NA		NA		NA		1	U	NA		NA		NA		1	U	NA	
Calcium	7440-70-2	4600		19000		11000		21000		16000		16000		NA		16100		NA		NA		NA		NA		NA		16200		NA		NA		NA		16900		NA	
Chromium	7440-47-3	27		20	U	20	U	20	U	20	U	20	U	NA		4	U	NA		NA		NA		NA		NA		4	U	NA		NA		NA		4	U	NA	
Cobalt (5)	7440-48-4	20	U	20	U	20	U	20	U	20	U	20	U	NA		4	U	NA		NA		NA		NA		NA		4	U	NA		NA		NA		4	U	NA	
Copper	7440-50-8	21		20	U	20	U	20	U	20	U	20	U	NA		10	U	NA		NA		NA		NA		NA		10	U	NA		NA		NA		10	U	NA	
Cyanide (5)		NA		NA		NA		NA		NA		NA		NA		10	U	NA		NA		NA		NA		NA		0.1	U	NA		NA		NA		10	U	NA	
Iron	7439-89-6	9900		100		1100		80		40	U	40	U	NA		129		NA		NA		NA		NA		NA		76		NA		NA		NA		942		NA	
Lead (5)	7439-92-1	15	U	15	U	15	U	15	U	15	U	15	U	NA		5	U	NA		NA		NA		NA		NA		5	U	NA		NA		NA		5	U	NA	
Magnesium	7439-95-4	2400		3600		2600		3200		3400		3500		NA		3640		NA		NA		NA		NA		NA		3630		NA		NA		NA		2740		NA	
Manganese	7439-96-5	460		44		230		75		20	U	20	U	15	U	4.1		15	U	15	U	15	U	15	U	15	U	2	J	15	U	15	U	15	U	6.6		15	U
Mercury (5)	7439-97-6	0.5	U	0.5	U	0.2	U	0.5	U	0.5	U	0.5	U	NA		0.2	U	NA		NA		NA		NA		NA		0.2	U	NA		NA		NA		0.2	U	NA	
Nickel (5)	7440-02-0	20	U	20	U	20	U	20	U	20	U	20	U	NA		10	U	NA		NA		NA		NA		NA		10	U	NA		NA		NA		10	U	NA	
Potassium	7440-09-7	3300		2200		2200		3000		1800		1700		NA		2210		NA		NA		NA		NA		NA		1980		NA		NA		NA		3110		NA	
Selenium (5)	7782-49-2	20	U	20	U	20	U	20	U	20	U	20	U	NA		15	U	NA		NA		NA		NA		NA		15	U	NA		NA		NA		15	U	NA	
Silver (5)	7440-22-4	10	U	10	U	10	U	10	U	10	U	10	U	NA		3	U	NA		NA		NA		NA		NA		3	U	NA		NA		NA		3	U	NA	
Sodium	7440-23-5	NA		NA		NA		NA		NA		NA		NA		50200		NA		NA		NA		NA		NA		50900		NA		NA		NA		9110		NA	
Thallium (5)	7440-28-0	20	U	20	U	20	U	20	U	20	U	20	U	NA		20	U	NA		NA		NA		NA		NA		20	U	NA		NA		NA		20	U	NA	
Vanadium	7440-62-2	15		10	U	10	U	10	U	10	U	10	U	NA		5	U	NA		NA		NA		NA		NA		5	U	NA		NA		NA		5	U	NA	
Zinc	7440-66-6	38		20	U	29		20	U	20	U	20	U	NA		10	U	NA		NA		NA		NA		NA		5.6	J	NA		NA		NA		10	U	NA	
PCBs																																							
Aroclor 1016 (5)	12674-11-2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U
Aroclor 1221 (5)	11104-28-2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U
Aroclor 1232 (5)	11141-16-5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U
Aroclor 1242 (5)	53469-21-9	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U
Aroclor 1248 (5)	12672-29-6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U
Aroclor 1254 (5)	11097-69-1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U
Aroclor 1260 (5)	11096-82-5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U
Aroclor 1262 (5)	11100-14-4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Aroclor 1268 (5)	37324-23-5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total PCBs (5)		NA		NA		NA		NA		NA		NA		0.062	U	0.061	U	0.062	U	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.062	U	0.062	U	0.062	U	0.061	U

APPENDIX B
Table B-1 On-Site Groundwater Data Set
Final Remedial Investigation Report
Operable Unit 2, Fletcher’s Paint Work and Storage Facility
Milford, New Hampshire

Monitoring Well Sampling Date Units		MW-05BR 4/7/2008 ug/L	Q	MW-05BR 7/16/2008 ug/L	Q	MW-05BR 10/8/2008 ug/L	Q	MW-05BR 9/28/2009 ug/L	Q	MW-06A 4/24/2007 ug/L	Q	MW-06A 1/17/2008 ug/L	Q	MW-06A 4/2/2008 ug/L	Q	MW-06A 7/15/2008 ug/L	Q	MW-06A 10/7/2008 ug/L	Q	MW-06A 10/8/2009 ug/L	Q	MW-06B 4/24/2007 ug/L	Q	MW-06B-DUP 4/24/2007 ug/L	Q	MW-06B 1/17/2008 ug/L	Q	MW-06B 4/2/2008 ug/L	Q	MW-06B 7/15/2008 ug/L	Q	MW-06B 10/7/2008 ug/L	Q	MW-06B 10/8/2009 ug/L	Q	KEYES WELL 4/25/2007 ug/L	Q	KEYES WELL 10/29/2009 ug/L	Q						
ANALYTE NAME	CAS																																												
VOCS																																													
2-Propanone (Acetone)	67-64-1	5	U	5	U	5	U	5	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	4.2	J	5	U	5	U	5	U	5	U	5	U	1	U	1	U		
Methyl-t-Butyl Ether (MTBE)	1634-04-4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U		
Other Detected VOCs		None (1)		None (1)		None (1)		None (1)		None (2)		None (1)		None (1)		None (1)		None (1)		None (1)		None (2)		None (2)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (1)		None (2)		None (2)		None (2)	
SVOCS																																													
Bis(2-ethylhexyl)phthalate	117-81-7	NA		NA		NA		9.4	U	5	U	NA		NA		NA		9.7	U	230		NA		NA		NA		NA		NA		NA		NA		9.5	U	5	U	NA		NA			
Butyl benzyl phthalate	85-68-7	NA		NA		NA		9.4	U	5	U	NA		NA		NA		9.7	U	5	U	NA		NA		NA		NA		NA		NA		NA		9.5	U	5	U	NA		NA			
Di-n-butylphthalate	84-74-2	NA		NA		NA		9.4	U	5	U	NA		NA		NA		0.43	J	5	U	NA		NA		NA		NA		NA		NA		NA		0.29	J	5	U	NA		NA			
Diethyl phthalate	84-66-2	NA		NA		NA		4.7	U	5	U	NA		NA		NA		4.9	U	5	U	NA		NA		NA		NA		NA		NA		NA		0.54	J	5	U	NA		NA			
Other Detected SVOCs								None (3)		None (4)								None (3)		None (4)															None (3)		None (4)								
METALS (unfiltered)																																													
Aluminum	7429-90-5	NA		NA		NA		200	U	110	U	NA		NA		NA		200	U	110	U	NA		NA		NA		NA		NA		NA		NA		200	U	110	U	110	U	110	U	110	U
Antimony (5)	7440-36-0	NA		NA		NA		20	U	6	U	NA		NA		NA		20	U	6	U	NA		NA		NA		NA		NA		NA		NA		20	U	6	U	7.5	U	7.5	U	7.5	U
Arsenic	7440-38-2	NA		NA		NA		10	U	10	U	NA		NA		NA		10	U	10	U	NA		NA		NA		NA		NA		NA		NA		10	U	10	U	10	U	10	U	10	U
Barium	7440-39-3	NA		NA		NA		20.6	U	20	U	NA		NA		NA		21.8	U	20	U	NA		NA		NA		NA		NA		NA		NA		8.9		20	U	15	U	15	U	15	U
Beryllium (5)	7440-41-7	NA		NA		NA		2	U	4	U	NA		NA		NA		2	U	4	U	NA		NA		NA		NA		NA		NA		NA		2	U	4	U	5	U	5	U	5	U
Cadmium (5)	7440-43-9	NA		NA		NA		1	U	5	U	NA		NA		NA		1	U	5	U	NA		NA		NA		NA		NA		NA		NA		1	U	5	U	5	U	5	U	5	U
Calcium	7440-70-2	NA		NA		NA		15700		19000		NA		NA		NA		39500		8600		NA		NA		NA		NA		NA		NA		NA		19400		8500		8400		8400		8400	
Chromium	7440-47-3	NA		NA		NA		4	U	20	U	NA		NA		NA		1	J	20	U	NA		NA		NA		NA		NA		NA		NA		0.9	J	20	U	20	U	20	U	20	U
Cobalt (5)	7440-48-4	NA		NA		NA		4	U	20	U	NA		NA		NA		4	U	20	U	NA		NA		NA		NA		NA		NA		NA		4	U	20	U	20	U	20	U	20	U
Copper	7440-50-8	NA		NA		NA		10	U	20	U	NA		NA		NA		10	U	20	U	NA		NA		NA		NA		NA		NA		NA		10	U	20	U	20	U	20	U	20	U
Cyanide (5)		NA		NA		NA		0.1	U	NA		NA		NA		NA		20	U	NA		NA		NA		NA		NA		NA		NA		NA		10	U	NA		NA		NA		NA	
Iron	7439-89-6	NA		NA		NA		58	U	41		NA		NA		NA		96		40	U	NA		NA		NA		NA		NA		NA		NA		50	U	6900		2000		2000		2000	
Lead (5)	7439-92-1	NA		NA		NA		5	U	14	U	NA		NA		NA		5	U	15	U	NA		NA		NA		NA		NA		NA		NA		5	U	15	U	15	U	15	U	15	U
Magnesium	7439-95-4	NA		NA		NA		2660		2700		NA		NA		NA		6020		840		NA		NA		NA		NA		NA		NA		NA		2140		570		550		550		550	
Manganese	7439-96-5	23.2		15	U	18.6		2.2	J	20	U	15	U	15	U	15	U	6.9		20	U	NA		15	U	15	U	15	U	15	U	15	U	15	U	0.9	J	68		30		30		30	
Mercury (5)	7439-97-6	NA		NA		NA		0.2	U	0.2	U	NA		NA		NA		0.2	U	0.2	U	NA		NA		NA		NA		NA		NA		NA		0.2	U	0.2	U	NA		NA		NA	
Nickel (5)	7440-02-0	NA		NA		NA		10	U	20	U	NA		NA		NA		10	U	20	U	NA		NA		NA		NA		NA		NA		NA		10	U	20	U	20	U	20	U	20	U
Potassium	7440-09-7	NA		NA		NA		2880		2500		NA		NA		NA		4400		530		NA		NA		NA		NA		NA		NA		NA		1020		1500		1800		1800		1800	
Selenium (5)	7782-49-2	NA		NA		NA		15	U	20	U	NA		NA		NA		15	U	20	U	NA		NA		NA		NA		NA		NA		NA		15	U	20	U	20	U	20	U	20	U
Silver (5)	7440-22-4	NA		NA		NA		3	U	10	U	NA		NA		NA		3	U	10	U	NA		NA		NA		NA		NA		NA		NA		3	U	10	U	10	U	10	U	10	U
Sodium	7440-23-5	NA		NA		NA		9700		NA		NA		NA		NA		57900		NA		NA		NA		NA		NA		NA		NA		NA		10300		NA		25000		25000		25000	
Thallium (5)	7440-28-0	NA		NA		NA		20	U	20	U	NA		NA		NA		20	U	20	U	NA		NA		NA		NA		NA		NA		NA		20	U	20	U	20	U	20	U	20	U
Vanadium	7440-62-2	NA		NA		NA		5	U	10	U	NA		NA		NA		5	U	10	U	NA		NA		NA		NA		NA		NA		NA		5	U	10	U	20	U	20	U	20	U
Zinc	7440-66-6	NA		NA		NA		10	U	25		NA		NA		NA		5.3	J	20	U	NA		NA		NA		NA		NA		NA		NA		1.9	J	34		60	U	60	U	60	U
PCBs																																													
Aroclor 1016 (5)	12674-11-2	0.062	U	0.061	U	0.061	U	0.47	U	0.5	U	0.063	U	0.061	U	0.062	U	0.062	U	0.47	U	0.5	U	NA		0.062	U	0.061	U	0.061	U	0.062	U	0.48	U	0.5	U	0.48	U	0.5	U	NA		NA	
Aroclor 1221 (5)	11104-28-2	0.062	U	0.061	U	0.061	U	0.47	U	0.5	U	0.063	U	0.061	U	0.062	U	0.062	U	0.47	U	0.5	U	NA		0.062	U	0.061	U	0.061	U	0.062	U	0.48	U	0.5	U	0.48	U	0.5	U	NA		NA	
Aroclor 1232 (5)	11141-16-5	0.062	U	0.061	U	0.061	U	0.47	U	0.5	U	0.063	U	0.061	U	0.062	U	0.062	U	0.47	U	0.5	U	NA		0.062	U	0.061	U	0.061	U	0.062	U	0.48	U	0.5	U	0.48	U	0.5	U	NA		NA	
Aroclor 1242 (5)	53469-21-9	0.062	U	0.061	U	0.061	U	0.47	U	0.5	U	0.063	U	0.061	U	0.062	U	0.062	U	0.47	U	0.5	U	NA		0.062	U	0.061	U	0.061	U	0.062	U	0.48	U	0.5	U	0.48	U	0.5	U	NA		NA	
Aroclor 1248 (5)	12672-29-6	0.062	U	0.061	U	0.061	U	0.47	U	0.5	U	0.063	U	0.061	U	0.062	U	0.062	U	0.47	U	0.5	U	NA		0.062	U	0.061	U	0.061	U	0.062	U	0.48	U	0.5	U	0.48	U	0.5	U	NA		NA	
Aroclor 1254 (5)	11097-69-1	0.062	U	0.061	U	0.061	U	0.47	U	0.5	U	0.063	U	0.061	U	0.062	U	0.062	U	0.47	U	0.5	U	NA		0.062	U	0.061	U	0.061	U	0.062	U	0.48	U	0.5	U	0.48	U	0.5	U	NA		NA	
Aro																																													

APPENDIX B
Table B-1 On-Site Groundwater Data Set
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility
Milford, New Hampshire

Watermark

Footnotes:

NA Sample analysis at this location did not include this analyte.

J	The analyte was positively identified	U	The analyte was not detected	Q	Data validation qualifier
---	---------------------------------------	---	------------------------------	---	---------------------------

- (1) The VOC analyte list was: 1,1,1-trichloroethane; 1,1,2,2-tetrachloroethane; 1,1,2-trichloro-1,2,2-trifluoroethane; 1,1,2-trichloroethane; 1,1-dichloroethane; 1,1-dichloroethene; 1,2-dichloroethane; 1,2,4-trichlorobenzene; 1,2-dibromo-3-chloropropane; 1,2-dibromomethane; 1,2-dichlorobenzene; 1,2-dichloropropane; 1,3-dichlorobenzene; 1,4-dichlorobenzene; 2-butanone; 2-hexanone; 4-methyl-2-pentanone; acetone; benzene; bromodichloromethane; bromoform; bromomethane; carbon disulfide; carbon tetrachloride; chlorobenzene; chloroethane; chloroform; chloromethane; cis-1,2-dichloroethene; cis-1,3-dichloropropene; cyclohexane; dibromochloromethane; dichlorodifluoromethane; ethylbenzene; isopropylbenzene; methyl acetate; methyl-t-butylether (MTBE); methyl cyclohexane; methylene chloride; styrene; tetrachloroethene; toluene; trans-1,2-dichloroethene; trans-1,3-dichloropropene; trichloroethene; trichlorofluoromethane; vinyl chloride; and xylenes (total).
- (2) The VOC analyte list was: 1,1,1,2-tetrachloroethane; 1,1,1-trichloroethane; 1,1,2,2-tetrachloroethane; 1,1,2-trichloro-1,2,2-trifluoroethane; 1,1,2-trichloroethane; 1,1-dichloroethene; 1,1-dichloropropane; 1,1-dichloroethane; 1,2,3-trichlorobenzene; 1,2,3-trichloropropane; 1,2,4-trichlorobenzene; 1,2,4-trimethylbenzene; 1,2-dibromo-3-chloropropane; 1,2-dibromomethane; 1,2-dichlorobenzene; 1,2-dichloroethane; 1,2-dichloropropane; 1,3,5-trimethylbenzene; 1,3-dichlorobenzene; 1,3-dichloropropane; 1,4-dichlorobenzene; 2,2-dichloropropane; 2-butanone (MEK); 2-chlorotoluene; 2-hexanone; 2-propanone (acetone); 4-chlorotoluene; 4-methyl-2-pentanone (MIBK); acrylonitrile; benzene; bromobenzene; bromochloromethane; bromodichloromethane; bromoform; bromomethane; carbon disulfide; carbon tetrachloride; chlorobenzene; chloroethane; chloroform; chloromethane; dibromochloromethane; dibromomethane; dichlorodifluoromethane; ethyl ether; ethylbenzene; hexachlorobutadiene; isopropylbenzene; m,p-xylene; methyl-t-butylether (MTBE); methylene chloride; n-butylbenzene; n-propylbenzene; naphthalene; o-xylene, para-isopropyltoluene; sec-butylbenzene; styrene; tert-butylbenzene; tetrachloroethylene; tetrahydrofuran; toluene; trans-1,2-dichloroethylene; trichloroethene; trichlorofluoromethane; vinyl acetate; vinyl chloride; c-1,3-dichloropropene; cis-1,2-dichloroethylene; and t-1,3-dichloropropene.
- (3) The SVOC analyte list was: 2,2'-oxybis(1-chloropropane); 2,4,5-trichlorophenol; 2,4,6-trichlorophenol; 2,4-dichlorophenol; 2,4-dimethylphenol; 2,4-dinitrophenol; 2,4-dinitrotoluene; 2,6-dinitrotoluene; 2-chloronaphthalene; 2-chlorophenol; 2-methylnaphthalene; 2-methylphenol; 2-nitroaniline; 2-nitrophenol; 3,3'-dichlorobenzidine; 3-nitroaniline; 4,6-dinitro-2-methylphenol; 4-bromophenyl phenyl ether; 4-chloro-3-methylphenol; 4-chloroaniline; 4-chlorophenyl phenyl ether; 4-methylphenol; 4-nitroaniline; 4-nitrophenol; acenaphthalene; acetophenone; anthracene; atrazine; benzaldehyde; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; biphenyl; bis(2-chloroethoxy) methane; bis(2-chloroethyl) ether; bis(2-ethylhexyl)phthalate; butyl benzyl phthalate; caprolactam; carbazole; chrysene; dibenz(a,h)anthracene; dibenzofuran; diethyl phthalate; dimethyl phthalate; di-n-butyl phthalate; di-n-octyl phthalate; fluoranthene; fluorene; hexachlorobenzene; hexachlorobutadiene; hexachlorocyclopentadiene; hexachloroethane; indeno(1,2,3-c,d)pyrene; isophorone; naphthalene; nitrobenzene; n-nitroso-di-n-propylamine; n-nitrosodiphenylamine; pentachlorophenol; phenanthrene; phenol; and pyrene.
- (4) The SVOC analyte list was: 1,2,4,5-tetrachlorobenzene; 1,2,4-trichlorobenzene; 1,2-dichlorobenzene; 1,3-dichlorobenzene; 1,3-dinitrobenzene; 1,4-dichlorobenzene; 1,4-naphthoquinine; 1-methylnaphthalene; 2,2'-oxybis(1-chloropropane); 2,3,4,6-tetrachlorophenol; 2,4,5-trichlorophenol; 2,4,6-trichlorophenol; 2,4-dichlorophenol; 2,4-dinitrophenol; 2,4-dinitrotoluene; 2,4-dimethylphenol; 2,6-dichlorophenol; 2,6-dinitrotoluene; 2-chloronaphthalene; 2-chlorophenol; 2-methylnaphthalene; 2-methylphenol; 2-nitroaniline; 2-nitrophenol; 3&4-methylphenol; 3,3'-dichlorobenzidine; 3-methylcycloanthrene; 3-nitroaniline; 4,6-dinitro-2-methylphenol; 4-bromophenyl phenyl ether; 4-chloro-3-methylphenol; 4-chloroaniline; 4-chlorophenyl phenyl ether; 4-nitroaniline; 4-nitrophenol; 4-nitroquinoline-1-oxide; acenaphthalene; acenaphthylene; acetophenone; aniline; anthracene; aramite; azobenzene; benzidine; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(g,h,i)perylene; benzo(k)fluoranthene; benzoic acid; benzyl alcohol; bis(2-chloroethyl) ether; bis(2-ethylhexyl)phthalate; butyl benzyl phthalate; carbazole; chlorobenzilate; chrysene; di-n-butylphthalate; di-n-octyl phthalate; dibenz(a,h)anthracene; dibenzofuran; diethylphthalate; dimethyl phthalate; dinoseb; ethyl methanesulfonate; fluoranthene; fluorene; hexachlorobenzene; hexachlorobutadiene; hexachlorocyclopentadiene; hexachloroethane; hexachloropropene; indeno(1,2,3-c,d)pyrene; isodrin; isophorone; isosafrole; kepone; methyl methanesulfonate; n-nitroso-di-n-propylamine; n-nitrosodiphenylamine; n-nitrosodimethylamine; naphthalene; nitrobenzene; pentachlorophenol; pentachlorobenzene; pentachloronitrobenzene; phenacetin; phenanthrene; phenol; pyrene; pyridine; safrole; and bis(-2-chloroethoxy)methane.
- (5) This analyte was not detected in any on-site well sample.

APPENDIX B
Table B-2 Up-Gradient Groundwater Data Set
Final Remedial Investigation Report
Operable Unit 2, Fletcher’s Paint Work and Storage Facility
Milford, New Hampshire

Monitoring Well Date Units ANALYTE NAME		MW-18B 7/19/2007 ug/L	Q	MW-18B 10/16/2007 ug/L	Q	MW-18B 1/16/2008 ug/L	Q	MW-18B 4/4/2008 ug/L	Q	MW-18B 7/15/2008 ug/L	Q	MW-18B 10/8/2008 ug/L	Q	MW-18B 1/14/2009 ug/L	Q	MW-18B 4/15/2009 ug/L	Q	MW-18B 7/15/2009 ug/L	Q	MW-18B 10/2/2009 ug/L	Q	MW-18B 1/4/2010 ug/L	Q	XM MW-10 4/16/2007 ug/L	Q	XM MW-10 10/31/2007 ug/L	Q	XM MW-10 4/8/2008 ug/L	Q	XM MW-10 10/6/2008 ug/L	Q	XM MW-10 4/1/2009 ug/L	Q	XM MW-10 10/1/2009 ug/L	Q				
VOCS																																							
1,2-Dibromoethane	106-93-4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2	U	2	U	0.02		0.018		0.015	U	2	U		
1,2-Dichloroethene (total)	540-59-0	NA		NA		NA		NA		NA		NA		NA		NA		0.85	J	NA		NA		NA		NA		NA		NA		NA		NA		NA			
1,2,4-Trichlorobenzene	120-82-1	2.2		1.8		1.9		1	U	3.9		2.8		2		2.3		2.7		2.2		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2,4-Trimethylbenzene	95-63-6	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	11.7		9.6		16.2		29		5	U	5	U		
1,3,5-Trimethylbenzene	108-67-8	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	5	U	5	U	8.3		9		10		5	U	5	U		
2-Propanone (acetone)	67-64-1	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U		
Benzene	71-43-2	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.5	U	5.1		0.63		0.5	U	0.5	U	0.5	U		
Chloroform	67-66-3	1	U	1	U	1	U	0.45	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U		
cis-1,2-Dichloroethylene	156-59-2	0.51	J	0.53	J	0.44	J	1	U	0.88	J	0.93	J	0.5	J	0.46	J	0.65	J	0.85	J	0.6	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U		
Ethylbenzene	100-41-4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	59.8		16.1		19		30.3		1	U	1	U		
Isopropylbenzene	98-82-8	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	6.3		5	U	5	U	5	U	5	U	5	U		
Methyl tert butyl ether	1634-04-4	1	U	1	U	1	U	0.48	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U		
Naphthalene	91-20-3	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	13.7		5	U	5.6		5.1		5	U	5	U		
N-Propylbenzene	103-65-1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	15.7		5	U	8.6		6.7		5	U	5	U		
Sec-Butylbenzene	135-98-8	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	5	U	5	U	5	U	21.1		5	U	5	U		
Styrene	100-42-5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5.8		5	U	5	U	5	U	5	U	5	U		
Toluene	108-88-3	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	11.6		11.8		9.4		108		1	U		
Trichloroethylene	79-01-6	11		10		8.4		6.4		20		15		12		11		11		18		7.8		1	U	1	U	1	U	1	U	1	U	1	U	1	U		
Xylenes, Total		3	U	3	U	3	U	3	U	3	U	3	U	3	U	2	U	2	U	2	U	2	U	2	U	2	U	21.1		19.8		19.9		120		2	U		
SVOCs																																							
Bis(2-ethylhexyl)phthalate	117-81-7	NA		10	U	NA		NA		NA		NA		NA		NA		9.4	U	NA		NA		NA		NA		NA		NA		NA		NA		NA			
Di-n-Butylphthalate	84-74-2	NA		0.3	J	NA		NA		NA		NA		NA		NA		9.4	U	NA		NA		NA		NA		NA		NA		NA		NA		NA			
Di-n-Octylphthalate	117-84- 0	NA		0.6	J	NA		NA		NA		NA		NA		NA		9.4	U	NA		NA		NA		NA		NA		NA		NA		NA		NA			
METALS (Unfiltered)																																							
Aluminum	7429-90-5	NA		200	U	NA		NA		NA		NA		NA		NA		53	J	NA		NA		NA		NA		NA		NA		NA		NA		NA			
Barium	7440-39-3	NA		48.6		NA		NA		NA		NA		NA		NA		49.7		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Calcium	7440-70-2	NA		37,300		NA		NA		NA		NA		NA		NA		38,800		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Copper	7440-50-8	NA		10	U	NA		NA		NA		NA		NA		NA		3.7	J	NA		NA		NA		NA		NA		NA		NA		NA		NA			
Iron	7439-89-6	NA		131		NA		NA		NA		NA		NA		NA		118		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Magnesium	7439-95-4	NA		3,290		NA		NA		NA		NA		NA		NA		3,300		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Manganese	7439-96-5	384	J	180		176		15	U	197		172		170		171		223		188		NA		NA		NA		NA		NA		NA		NA		NA			
Potassium	7440-09-7	NA		4,460		NA		NA		NA		NA		NA		NA		4,690		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Sodium	7440-23-5	NA		24,200		NA		NA		NA		NA		NA		NA		26,900		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Vanadium	7440-62-2	NA		5	U	NA		NA		NA		NA		NA		NA		2.1	J	NA		NA		NA		NA		NA		NA		NA		NA		NA			
Zinc	7440-66-6	NA		10	U	NA		NA		NA		NA		NA		NA		2.6	J	NA		NA		NA		NA		NA		NA		NA		NA		NA			
PCBs																																							
Aroclor 1016	12674-11-2	0.062	U	0.061	U	0.063	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.47	U	0.47	U	0.47	U	0.49	U	NA		NA		NA		NA		NA		NA			
Aroclor 1221	11104-28-2	0.91		2.2	J	1.7	J	0.061	U	0.061	U	1.3	JN	2.3		2.3	JN	3.3	J	7.3		11	J	NA		NA		NA		NA		NA		NA		NA			
Aroclor 1232	11141-16-5	0.062	U	0.061	U	0.063	U	0.061	U	0.061	U	0.061	U	0.061	U	0.47	U	0.47	U	0.47																			

Footnotes:
NA Sample analysis at this location did not include this analyte.
X The well could not be located at this sampling event and no sample was collected
J The analyte was positively identified JN The analyte was tentatively identified; estimated concentration Q Data validation qualifier U The analyte was not detected

APPENDIX B
Table B-2 Up-Gradient Groundwater Data Set
Final Remedial Investigation Report
Operable Unit 2, Fletcher’s Paint Work and Storage Facility
Milford, New Hampshire

Monitoring Well		XM MW-11		XM MW-11		XM MW-11		XM MW-11		XM MW-11		XM MW-11		XM MW-13		XM MW-13		XM MW-13		XM MW-13		XM MW-13		XM MW-13		XM MW-13		KW03D		KW03D		KW03D-DUP	
Date		4/16/2007		10/31/2007		4/8/2008		10/6/2008		4/1/2009		10/1/2009		4/16/2007		10/31/2007		4/8/2008		10/6/2008		4/1/2009		10/1/2009		4/23/2007		10/29/2009		10/29/2009			
Units		ug/L		Q		ug/L		Q		ug/L		Q		ug/L		Q		ug/L		Q		ug/L		Q		ug/L		Q		ug/L		Q	
ANALYTE NAME	CAS																																
VOCS																																	
1,2-Dibromoethane	106-93-4	X		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U	1	U	1	U
1,2-Dichloroethene (total)	540-59-0	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
1,2,4-Trichlorobenzene	120-82-1	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	95-63-6	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	108-67-8	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
2-Propanone (acetone)	67-64-1	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1.7	
Benzene	71-43-2	X		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U
Chloroform	67-66-3	X		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethylene	156-59-2	X		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	X		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
Methyl tert butyl ether	1634-04-4	X		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	91-20-3	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
N-Propylbenzene	103-65-1	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
Sec-Butylbenzene	135-98-8	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
Styrene	100-42-5	X		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
Toluene	108-88-3	X		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethylene	79-01-6	X		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes, Total		X		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		NA		NA	
SVOCS																																	
Bis(2-ethylhexyl)phthalate	117-81-7	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	2.5	U	2.5		2.5	
Di-n-Butylphthalate	84-74-2	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	2.5	U	2.5		2.5	U
Di-n-Octylphthalate	117-84- 0	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		5	U	2.5	U	2.5		2.5	U
METALS (non-filtered)																																	
Aluminum	7429-90-5	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		110	U	110	U	110		110	U
Barium	7440-39-3	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		20	U	20		20		20	
Calcium	7440-70-2	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		20000		19000		19000		19000	
Copper	7440-50-8	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		20	U	20	U	20		20	U
Iron	7439-89-6	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		360		690		460		460	
Magnesium	7439-95-4	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		4000		3700		3600		3600	
Manganese	7439-96-5	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		26		20	U	20		20	U
Potassium	7440-09-7	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		2100		2500		2600		2600	
Sodium	7440-23-5	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		45000		45000		45000	
Vanadium	7440-62-2	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		10	U	20	U	20		20	U
Zinc	7440-66-6	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		20	U	60	U	60		60	U
PCBs																																	
Aroclor 1016	12674-11-2	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1221	11104-28-2	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1232	11141-16-5	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1242	53469-21-9	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1248	12672-29-6	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1254	11097-69-1	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1260	11096-82-5	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1262	11100-14-4	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Aroclor 1268	37324-23-5	X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.5	U	0.55	U	0.55		0.55	U
Total PCBs		X		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	

NOTES

NA	Sample analysis at this location did not include this analyte.
X	The well could not be located at this sampling event and no sample was collected
J	The analyte was positively identified
JN	The analyte was tentatively identified; estimated concentration
Q	Data validation qualifier
U	The analyte was not detected

APPENDIX B
Table B-3 Background Groundwater Data Set
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility, Milford, New Hampshire

Monitoring Well Date Units ANALYTE NAME	MW-25B 7/17/2007 ug/L	Q	MW-25B 10/11/2007 ug/L	Q	MW-25B 1/10/2008 ug/L	Q	MW-25B 4/4/2008 ug/L	Q	MW-25B 7/17/2008 ug/L	Q	MW-25B 10/8/2008 ug/L	Q	MW-25B 10/12/2009 ug/L	Q
Volatile Organics														
1,1,1-Trichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-trifluoroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2 Dichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4 Trichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethene (total)	NA		NA		NA		NA		NA		NA		2	U
1,2-Dichloropropane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	1	U	1	U	1	U	0.88	J	1	U	1	U	1	U
Chloromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl acetate	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl tert butyl ether	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene Chloride	1	J	1	J	1	U	1	U	1	U	1	U	1	U
Styrene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl acetate	NA		5	U	NA		NA		NA		NA		5	U
Vinyl chloride	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes, Total	3	U	3	U	3	U	3	U	3	U	3	U	2	U
Semivolatile Organics														
2,2'-Oxybis(1-Chloropropane)	NA		9	U	NA		NA		NA		NA		9.4	U
2,4,5-Trichlorophenol	NA		24	U	NA		NA		NA		NA		24	U
2,4,6-Trichlorophenol	NA		9	U	NA		NA		NA		NA		9.4	U
2,4-Dichlorophenol	NA		9	U	NA		NA		NA		NA		9.4	U
2,4-Dimethylphenol	NA		9	U	NA		NA		NA		NA		9.4	U
2,4-Dinitrophenol	NA		24	U	NA		NA		NA		NA		24	U
2,4-Dinitrotoluene	NA		9	U	NA		NA		NA		NA		9.4	U
2,6-Dinitrotoluene	NA		9	U	NA		NA		NA		NA		9.4	U
2-Chloronaphthalene	NA		9	U	NA		NA		NA		NA		9.4	U
2-Chlorophenol	NA		9	U	NA		NA		NA		NA		9.4	U
2-Methylnaphthalene	NA		9	U	NA		NA		NA		NA		9.4	U
2-Methylphenol	NA		9	U	NA		NA		NA		NA		9.4	U
2-Nitroaniline	NA		24	U	NA		NA		NA		NA		24	U
2-Nitrophenol	NA		9	U	NA		NA		NA		NA		9.4	U
3,3'-Dichlorobenzidine	NA		9	U	NA		NA		NA		NA		9.4	U
3-Nitroaniline	NA		24	U	NA		NA		NA		NA		24	U
4,6-Dinitro-2-methylphenol	NA		24	U	NA		NA		NA		NA		24	U
4-Bromophenyl phenyl ether	NA		9	U	NA		NA		NA		NA		9.4	U
4-Chloro-3-methylphenol	NA		9	U	NA		NA		NA		NA		9.4	U
4-Chloroaniline	NA		9	U	NA		NA		NA		NA		9.4	U
4-Chlorophenyl phenyl ether	NA		9	U	NA		NA		NA		NA		9.4	U
4-Methylphenol	NA		9	U	NA		NA		NA		NA		24	J
4-Nitroaniline	NA		24	U	NA		NA		NA		NA		24	U
4-Nitrophenol	NA		24	U	NA		NA		NA		NA		9.4	U

APPENDIX B
Table B-3 Background Groundwater Data Set
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Work and Storage Facility, Milford, New Hampshire

Monitoring Well Date Units ANALYTE NAME	MW-25B 7/17/2007 ug/L	Q	MW-25B 10/11/2007 ug/L	Q	MW-25B 1/10/2008 ug/L	Q	MW-25B 4/4/2008 ug/L	Q	MW-25B 7/17/2008 ug/L	Q	MW-25B 10/8/2008 ug/L	Q	MW-25B 10/12/2009 ug/L	Q
Acenaphthene	NA		9	U	NA		NA		NA		NA		9.4	U
Acenaphthylene	NA		9	U	NA		NA		NA		NA		9.4	U
Acetophenone	NA		9	U	NA		NA		NA		NA		9.4	U
Anthracene	NA		9	U	NA		NA		NA		NA		9.4	U
Atrazine	NA		9	U	NA		NA		NA		NA		9.4	U
Benzaldehyde	NA		9	U	NA		NA		NA		NA		9.4	U
Benzo(a)anthracene	NA		9	U	NA		NA		NA		NA		9.4	U
Benzo(a)pyrene	NA		9	U	NA		NA		NA		NA		9.4	U
Benzo(b)fluoranthene	NA		9	U	NA		NA		NA		NA		9.4	U
Benzo(g,h,i)perylene	NA		9	U	NA		NA		NA		NA		9.4	U
Benzo(k)fluoranthene	NA		9	U	NA		NA		NA		NA		9.4	U
Biphenyl	NA		9	U	NA		NA		NA		NA		9.4	U
Bis(2-chloroethoxy) methane	NA		9	U	NA		NA		NA		NA		9.4	U
Bis(2-chloroethyl) ether	NA		9	U	NA		NA		NA		NA		9.4	U
bis(2-Ethylhexyl)phthalate	NA		9	U	NA		NA		NA		NA		9.4	U
Butyl benzyl phthalate	NA		9	U	NA		NA		NA		NA		9.4	U
Caprolactam	NA		9	U	NA		NA		NA		NA		9.4	U
Carbazole	NA		9	U	NA		NA		NA		NA		9.4	U
Chrysene	NA		9	U	NA		NA		NA		NA		9.4	U
Dibenz(a,h)anthracene	NA		9	U	NA		NA		NA		NA		9.4	U
Dibenzofuran	NA		9	U	NA		NA		NA		NA		9.4	U
Diethyl phthalate	NA		9	U	NA		NA		NA		NA		4.7	U
Dimethyl phthalate	NA		9	U	NA		NA		NA		NA		9.4	U
Di-n-Butylphthalate	NA		9	U	NA		NA		NA		NA		9.4	U
Di-n-Octylphthalate	NA		9	U	NA		NA		NA		NA		9.4	U
Fluoranthene	NA		9	U	NA		NA		NA		NA		9.4	U
Fluorene	NA		9	U	NA		NA		NA		NA		9.4	U
Hexachlorobenzene	NA		9	U	NA		NA		NA		NA		9.4	U
Hexachlorobutadiene	NA		9	U	NA		NA		NA		NA		9.4	U
Hexachlorocyclopentadiene	NA		9	U	NA		NA		NA		NA		9.4	U
Hexachloroethane	NA		9	U	NA		NA		NA		NA		9.4	U
Indeno(1,2,3-c,d)pyrene	NA		9	U	NA		NA		NA		NA		9.4	U
Isophorone	NA		9	U	NA		NA		NA		NA		9.4	U
Naphthalene	NA		9	U	NA		NA		NA		NA		9.4	U
Nitrobenzene	NA		9	U	NA		NA		NA		NA		9.4	U
N-Nitroso-Di-n-propylamine	NA		9	U	NA		NA		NA		NA		9.4	U
N-Nitrosodiphenylamine (1)	NA		9	U	NA		NA		NA		NA		9.4	U
Pentachlorophenol	NA		24	U	NA		NA		NA		NA		24	U
Phenanthrene	NA		9	U	NA		NA		NA		NA		9.4	U
Phenol	NA		9	U	NA		NA		NA		NA		9.4	U
Pyrene	NA		9	U	NA		NA		NA		NA		9.4	U
PCBs														
Aroclor 1016	0.062	U	0.061	J	0.062	U	0.062	U	0.061	U	0.061	U	0.47	U
Aroclor 1221	0.062	U	0.061	J	0.062	U	0.062	U	0.061	U	0.061	U	0.47	U
Aroclor 1232	0.062	U	0.061	J	0.062	U	0.062	U	0.061	U	0.061	U	0.47	U
Aroclor 1242	0.062	U	0.061	U	0.062	U	0.062	U	0.046	JN	0.061	U	0.47	U
Aroclor 1248	0.062	U	0.061	U	0.062	U	0.062	U	0.061	U	0.061	U	0.47	U
Aroclor 1254	0.062	U	0.061	U	0.062	U	0.062	U	0.061		0.061	U	0.47	U
Aroclor 1260	0.062	U	0.061	U	0.062	U	0.062	U	0.061	U	0.061	U	0.47	U
Aroclor 1262	NA		NA		NA		NA		NA		NA		NA	
Aroclor 1268	NA		NA		NA		NA		NA		NA		NA	
Total PCBs	0.062	U	0.061	J	0.062	U	0.062	U	0.11	JN	0.061	U	0.47	U
Inorganics - Unfiltered														
Aluminum	NA		434		NA		NA		NA		NA		200	U
Antimony	NA		20	U	NA		NA		NA		NA		20	U
Arsenic	NA		10	U	NA		NA		NA		NA		10	U
Barium	NA		19.9		NA		NA		NA		NA		51.1	
Beryllium	NA		2	U	NA		NA		NA		NA		2	U
Cadmium	NA		1	U	NA		NA		NA		NA		1	U
Calcium	NA		10600		NA		NA		NA		NA		17900	
Chromium	NA		4	U	NA		NA		NA		NA		1.1	J
Cobalt	NA		4	U	NA		NA		NA		NA		1.4	J
Copper	NA		10	U	NA		NA		NA		NA		1.6	J
Cyanide	NA		10	U	NA		NA		NA		NA		10	U
Iron	NA		120		NA		NA		NA		NA		5270	
Lead	NA		5	U	NA		NA		NA		NA		5	U
Magnesium	NA		933		NA		NA		NA		NA		1460	
Manganese	15	U	11.4		15	U	15	U	15	U	15	U	136	
Mercury	NA		0.2	U	NA		NA		NA		NA		0.2	U
Nickel	NA		10	U	NA		NA		NA		NA		1.8	J
Potassium	NA		2740		NA		NA		NA		NA		4030	
Selenium	NA		15	U	NA		NA		NA		NA		15	U
Silver	NA		3	U	NA		NA		NA		NA		3	U
Sodium	NA		19600		NA		NA		NA		NA		52600	J
Thallium	NA		20	U	NA		NA		NA		NA		20	U
Vanadium	NA		5	U	NA		NA		NA		NA		5	U
Zinc	NA		10	U	NA		NA		NA		NA		10.5	

Notes:

- NA
- J, JN
- Q
- U
- Sample analysis at this location did not include this analyte.
- The analyte was tentatively identified; estimated concentration
- Data validation qualifier
- The analyte was not detected

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File Sheet1.wst
Full Precision OFF
Confidence Coefficient 95%
Number of Bootstrap Operations 2000

Methyl-t-Butyl Ether (MTBE)

General Statistics

Number of Valid Data	33	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	32
		Percent Non-Detects	96.97%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Methyl-t-Butyl Ether was not processed!

Aluminum

General Statistics

Number of Valid Data	15	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	11
		Percent Non-Detects	73.33%

Raw Statistics

Minimum Detected	100
Maximum Detected	12000
Mean of Detected	3428
SD of Detected	5733
Minimum Non-Detect	110
Maximum Non-Detect	200

Log-transformed Statistics

Minimum Detected	4.605
Maximum Detected	9.393
Mean of Detected	6.778
SD of Detected	2.019
Minimum Non-Detect	4.7
Maximum Non-Detect	5.298

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	12
Number treated as Detected	3
Single DL Non-Detect Percentage	80.00%

Warning: There are only 4 Distinct Detected Values in this data

**Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions**

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.7	Shapiro Wilk Test Statistic	0.984
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	966.5	Mean	4.906
SD	3067	SD	1.518
95% DL/2 (t) UCL	2361	95% H-Stat (DL/2) UCL	1875
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	4.815
		SD in Log Scale	1.879
		Mean in Original Scale	995.7
		SD in Original Scale	3059
		95% t UCL	2387
		95% Percentile Bootstrap UCL	2533
		95% BCA Bootstrap UCL	3418
		95% H-UCL	6332
Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.284	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	12056		
nu star	2.275		
A-D Test Statistic	0.355	Nonparametric Statistics	
5% A-D Critical Value	0.684	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.684	Mean	987.5
5% K-S Critical Value	0.411	SD	2956
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	881.4
Assuming Gamma Distribution		95% KM (t) UCL	2540
Gamma ROS Statistics using Extrapolated Data		95% KM (z) UCL	2437
Minimum	0.000001	95% KM (jackknife) UCL	2238
Maximum	12000	95% KM (bootstrap t) UCL	9760
Mean	971	95% KM (BCA) UCL	12000
Median	0.000001	95% KM (Percentile Bootstrap) UCL	3360
SD	3073	95% KM (Chebyshev) UCL	4830
k star	0.098	97.5% KM (Chebyshev) UCL	6492
Theta star	9909	99% KM (Chebyshev) UCL	9758
Nu star	2.94	Potential UCLs to Use	
AppChi2	0.355	95% KM (t) UCL	2540
95% Gamma Approximate UCL (Use when n >= 40)	8046		
95% Adjusted Gamma UCL (Use when n < 40)	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	15	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	14
		Percent Non-Detects	93.33%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Arsenic was not processed!

Iron

General Statistics

Number of Valid Data	15	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	4
		Percent Non-Detects	26.67%

Raw Statistics

Minimum Detected	41
Maximum Detected	9900
Mean of Detected	1942
SD of Detected	3321
Minimum Non-Detect	40
Maximum Non-Detect	58

Log-transformed Statistics

Minimum Detected	3.714
Maximum Detected	9.2
Mean of Detected	5.995
SD of Detected	1.963
Minimum Non-Detect	3.689
Maximum Non-Detect	4.06

Note: Data have multiple DLs - Use of KM Method is recommended
 For all methods (except KM, DL/2, and ROS Methods),
 Observations < Largest ND are treated as NDs

Number treated as Non-Detect	5
Number treated as Detected	10
Single DL Non-Detect Percentage	33.33%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.643
5% Shapiro Wilk Critical Value	0.85

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	1431
SD	2941
95% DL/2 (t) UCL	2768

Maximum Likelihood Estimate(MLE) Method

Mean	496.1
SD	3745
95% MLE (t) UCL	2199
95% MLE (Tiku) UCL	2310

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.873
5% Shapiro Wilk Critical Value	0.85

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	5.235
SD	2.112
95% H-Stat (DL/2) UCL	26025

Log ROS Method

Mean in Log Scale	4.813
SD in Log Scale	2.639
Mean in Original Scale	1426
SD in Original Scale	2943
95% t UCL	2764
95% Percentile Bootstrap UCL	2670
95% BCA Bootstrap UCL	3392
95% H UCL	246107

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.362
Theta Star	5359
nu star	7.973

A-D Test Statistic	0.867
5% A-D Critical Value	0.798
K-S Test Statistic	0.798
5% K-S Critical Value	0.272

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	0.000001
Maximum	9900
Mean	1424
Median	96
SD	2944
k star	0.141
Theta star	10086
Nu star	4.236
AppChi2	0.817

95% Gamma Approximate UCL (Use when n >= 40) 7383

95% Adjusted Gamma UCL (Use when n < 40) 9228

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Lognormal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean 1435

SD 2839

SE of Mean 768.7

95% KM (t) UCL 2789

95% KM (z) UCL 2700

95% KM (jackknife) UCL 2764

95% KM (bootstrap t) UCL 7637

95% KM (BCA) UCL 2728

95% KM (Percentile Bootstrap) UCL 2744

95% KM (Chebyshev) UCL 4786

97.5% KM (Chebyshev) UCL 6236

99% KM (Chebyshev) UCL 9084

Potential UCLs to Use

99% KM (Chebyshev) UCL 9084

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

Manganese**General Statistics**

Number of Valid Data	33
Number of Distinct Detected Data	14

Number of Detected Data	14
Number of Non-Detect Data	19
Percent Non-Detects	57.58%

Raw Statistics

Minimum Detected	0.9
Maximum Detected	460
Mean of Detected	69.39
SD of Detected	127.5
Minimum Non-Detect	15
Maximum Non-Detect	20

Log-transformed Statistics

Minimum Detected	-0.105
Maximum Detected	6.131
Mean of Detected	2.855
SD of Detected	1.845
Minimum Non-Detect	2.708
Maximum Non-Detect	2.996

Note: Data have multiple DLs - Use of KM Method is recommended

For all methods (except KM, DL/2, and ROS Methods),

Observations < Largest ND are treated as NDs

Number treated as Non-Detect 26

Number treated as Detected 7

Single DL Non-Detect Percentage 78.79%

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.589
5% Shapiro Wilk Critical Value	0.874

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	33.98
SD	86.9
95% DL/2 (t) UCL	59.61

Maximum Likelihood Estimate(MLE) Method N/A

MLE yields a negative mean

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.976
5% Shapiro Wilk Critical Value	0.874

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	2.397
SD	1.244
95% H-Stat (DL/2) UCL	43.66

Log ROS Method

Mean in Log Scale 1.837

SD in Log Scale 1.723

Mean in Original Scale 32.37

SD in Original Scale 87.49

95% t UCL 58.17

95% Percentile Bootstrap UCL 61.21

95% BCA Bootstrap UCL 77.87

95% H-UCL 78.76

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.412
Theta Star	168.4
nu star	11.54

A-D Test Statistic 0.505

5% A-D Critical Value 0.8

K-S Test Statistic 0.8

5% K-S Critical Value 0.243

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum 0.000001

Maximum 460

Mean 34.73

Median 4.1

SD 87.63

k star 0.121

Theta star 286.5

Nu star 8

AppChi2 2.735

95% Gamma Approximate UCL (Use when n >= 40) 101.6

95% Adjusted Gamma UCL (Use when n < 40) 107.7

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean 31.68

SD 86.32

SE of Mean 15.61

95% KM (t) UCL 58.11

95% KM (z) UCL 57.35

95% KM (jackknife) UCL 57.56

95% KM (bootstrap t) UCL 138.4

95% KM (BCA) UCL 64.12

95% KM (Percentile Bootstrap) UCL 59.76

95% KM (Chebyshev) UCL 99.71

97.5% KM (Chebyshev) UCL 129.1

99% KM (Chebyshev) UCL 187

Potential UCLs to Use

95% KM (t) UCL 58.11

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

- Exposure Point Concentration Development for Arsenic (Non-Volatile Carcinogen and Carcinogen and Non-Carcinogen)
- Exposure Point Concentration Development for Methyl-t-Butyl Ether (MTBE) (Volatile Non-Carcinogen)
- Sample Equations and Calculations for Ingestion of Groundwater by the Park Worker (for Arsenic as a Carcinogen)
 - Ingestion Intake and Risk Equations
 - Ingestion Intake, Exposure, and Toxicity Parameters
 - Ingestion Intake and Risk Equation Units Check
 - Ingestion Intake and Risk Calculation
- Sample Equations and Calculations for Ingestion of Groundwater by the Park Worker (for Arsenic as a Non-Carcinogen)
 - Ingestion Intake and Risk Equations
 - Ingestion Intake, Exposure, and Toxicity Parameters
 - Ingestion Intake and Risk Equation Units Check
 - Ingestion Intake and Risk Calculation
- Sample Equations and Calculations for Dermal Absorption from Groundwater by the Park Worker (for Arsenic as a Carcinogen)
 - Dermal Absorption Intake and Risk Equations
 - Dermal Absorption Intake, Exposure, and Toxicity Parameters
 - Dermal Absorption Intake and Risk Equation Units Check
 - Dermal Absorption Intake and Risk Calculation
- Sample Equations and Calculations for Dermal Absorption from Groundwater by the Park Worker (for Arsenic as a Non-Carcinogen)
 - Dermal Absorption Intake and Risk Equations
 - Dermal Absorption Intake, Exposure, and Toxicity Parameters
 - Dermal Absorption Intake and Risk Equation Units Check
 - Dermal Absorption Intake and Risk Calculation
- Sample Equations and Calculations for Inhalation of Volatiles from Groundwater by the Adult Resident (for MTBE as a Carcinogen)
 - Inhalation Exposure and Risk Equations
 - Inhalation Exposure and Toxicity Parameters
 - Inhalation Exposure and Risk Equation Units Check
 - Inhalation Exposure and Risk Calculation
- Sample Equations and Calculations for Inhalation of Volatiles from Groundwater by the Adult Resident (for MTBE as a Non-Carcinogen)
 - Inhalation Exposure and Risk Equations
 - Inhalation Exposure and Toxicity Parameters
 - Inhalation Exposure and Risk Equation Units Check
 - Inhalation Exposure and Risk Calculation

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Exposure Point Concentration Development for Arsenic (Non-Volatile Carcinogen and Non-Carcinogen)

On-Site Groundwater Data for Arsenic

Arsenic Data Concentration (ug/L)	Qualifier	ProUCL Code	Monitoring Well	Sampling Date	Comment
11		1	KW01D	4/23/2007	
10	U	0	KW01S	4/23/2007	
10	U	0	OW2	4/25/2007	
10	U	0	OW2P	4/23/2007	
10	U	0	MW-05A	4/23/2007	
10	U	0	MW-05A	10/15/2007	
10	U	0	MW-05A	9/29/2009	
10	U	0	MW-05BR	10/11/2007	
10	U	0	MW-05BR	9/28/2009	
10	U	0	MW-06A	4/24/2007	
10	U	0	MW-06A	10/8/2009	
10	U	0	MW-06B	4/24/2007	
10	U	0	MW-06B	10/8/2009	
10	U	0	KEYES WELL	4/25/2007	
20	U	0	KEYES WELL	10/29/2009	

ProUCL Output Arsenic

General Statistics

Number of Valid Data	15	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	14
		Percent Non-Detects	93.33%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Arsenic was not processed!

Exposure Point Concentration for Arsenic was set to the maximum detected concentration of 11 ug/L, or 0.011 mg/L.

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Exposure Point Concentration Development for Methyl-t-Butyl Ether (MTBE) (Volatile Carcinogen and Non-Carcinogen)

On-Site Groundwater Data for MTBE

Methyl-t-Butyl Ether Data Concentration (ug/L)	Qualifier	ProUCL Code	Monitoring Well	Sampling Date	Comment
49		1	KW01D	4/23/2007	
1	U	0	KW01S	4/23/2007	
1	U	0	OW2	4/25/2007	
1	U	0	OW2P	4/23/2007	
1	U	0	MW-05A	4/23/2007	Duplicate has same result
1	U	0	MW-05A	7/17/2007	
1	U	0	MW-05A	10/15/2007	
1	U	0	MW-05A	1/10/2008	
1	U	0	MW-05A	4/7/2008	
1	U	0	MW-05A	7/16/2008	Duplicate has same result
1	U	0	MW-05A	10/8/2008	
1	U	0	MW-05A	9/29/2008	
1	U	0	MW-05BR	7/17/2007	Duplicate has same result
1	U	0	MW-05BR	10/11/2007	
1	U	0	MW-05BR	1/10/2008	
1	U	0	MW-05BR	4/7/2008	
1	U	0	MW-05BR	7/16/2008	
1	U	0	MW-05BR	10/8/2008	
1	U	0	MW-05BR	9/28/2009	
1	U	0	MW-06A	4/24/2007	
1	U	0	MW-06A	1/17/2008	
1	U	0	MW-06A	4/2/2008	
1	U	0	MW-06A	7/15/2008	
1	U	0	MW-06A	10/7/2008	
1	U	0	MW-06A	10/8/2009	
1	U	0	MW-06B	4/24/2007	Duplicate had same result
1	U	0	MW-06B	1/17/2008	
1	U	0	MW-06B	4/2/2008	
1	U	0	MW-06B	7/15/2008	
1	U	0	MW-06B	10/7/2008	

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

1	U	0	MW-06B	10/8/2009	
1	U	0	KEYES WELL	4/25/2007	
1	U	0	KEYES WELL	10/29/2009	

ProUCL Output

Methyl-t-Butyl Ether

General Statistics

Number of Valid Data	33	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	32
		Percent Non-Detects	96.97%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Methyl-t-Butyl Ether was not processed!

Exposure Point Concentration for MTBE was set to the maximum detected concentration of 50 ug/L (in the duplicate), or 0.050 mg/L.

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Sample Equations and Calculations for Ingestion of Groundwater by the Park Worker

Ingestion Intake and Risk Equations (for Arsenic as a Carcinogen)

Ingestion [C] -1

$$CDI = \frac{CW \times IRW \times EF \times ED}{BW \times AT_c}$$

Ingestion [C] -2

$$ELCR = CDI \times CSF_o$$

Ingestion Intake, Exposure, and Toxicity Parameters (for Arsenic as a Carcinogen and the Park Worker Receptor)

CDI	=	Chronic Daily Intake	[calculated] (mg/kg-day)
CW	=	Exposure Point Concentration for Arsenic	(0.011 mg/L)
IRW	=	Ingestion Rate	(1 L/day)
EF	=	Exposure Frequency	(143 days/year)
ED	=	Exposure Duration	(25 years)
BW	=	Body Weight	(70 kg)
ATc	=	Averaging Time for Carcinogen	(25,550 days)
ELCR	=	Excess Lifetime Cancer Risk for ingestion	[calculated] (unitless)
CSFo	=	Cancer Slope Factor for Arsenic for oral intake	(1.5E+00 (mg/kg-day) ⁻¹)

Ingestion Intake and Risk Equation Units Check

Ingestion [C] -1

$$\frac{\text{mg}}{\text{kg day}} = \frac{\frac{\text{mg}}{\text{L}} \times \frac{\text{L}}{\text{day}} \times \frac{\text{day}}{\text{year}} \times \text{year}}{\text{kg} \times \text{day}}$$

Ingestion [C] -2

$$[\text{Unitless}] = \frac{\text{mg}}{\text{kg day}} \times \left[\frac{\text{mg}}{\text{kg day}} \right]^{-1}$$

Ingestion Intake and Risk Calculation (for Arsenic as a Carcinogen and the Park Worker Receptor)

Ingestion [C] -1

$$(2.2E-05) = \frac{0.011 \times 1 \times 143 \times 25}{70 \times 25,550}$$

Compare to: Table 4-7.1 "Groundwater Ingestion Cancer Risk Calculations/Arsenic Intake/Exposure" = 2.2E-05

Ingestion [C] -2

$$(3.3E-05) = (2.2E-05) \times (1.5E+00)$$

Compare to: Table 4-7.1 "Groundwater Ingestion Cancer Risk Calculations/Arsenic Cancer Risk" = 3.3E-05

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Sample Equations and Calculations for Ingestion of Groundwater by the Park Worker (for Arsenic as a Non-Carcinogen)

Ingestion Intake and Risk Equations (for Arsenic as a Non-Carcinogen)

Ingestion [NC] -1

$$CDI = \frac{CW \times IRW \times EF \times ED}{BW \times AT_N}$$

Ingestion [NC] -2

$$HQ = \frac{CDI}{RfD_o}$$

Ingestion Intake, Exposure, and Toxicity Parameters (for Arsenic as a Non-Carcinogen and the Park Worker Receptor)

CDI	=	Chronic Daily Intake	[calculated] (mg/kg-day)
CW	=	Exposure Point Concentration for Arsenic	(0.011 mg/L)
IRW	=	Ingestion Rate	(1 L/day)
EF	=	Exposure Frequency	(143 days/year)
ED	=	Exposure Duration	(25 years)
BW	=	Body Weight	(70 kg)
AT _N	=	Averaging Time for Non-Carcinogen	(9,125 days)
HQ	=	Hazard Quotient for ingestion	[calculated] (unitless)
RfD _O	=	Reference Dose for Arsenic for oral intake	(3.0E-04 mg/kg-day)

Ingestion Intake and Risk Equation Units Check

Ingestion [NC] -1

$$\frac{\text{mg}}{\text{kg day}} = \frac{\frac{\text{mg}}{\text{L}} \times \frac{\text{L}}{\text{day}} \times \frac{\text{day}}{\text{year}} \times \text{year}}{\text{kg} \times \text{day}}$$

Ingestion [NC] -2

$$[\text{Unitless}] = \frac{\frac{\text{mg}}{\text{kg day}}}{\frac{\text{mg}}{\text{kg day}}}$$

Ingestion Intake and Risk Calculation (for Arsenic as a Non-Carcinogen and the Park Worker Receptor)

Ingestion [NC] -1

$$(6.2E - 05) = \frac{0.011 \times 1 \times 143 \times 25}{70 \times 9,125}$$

Compare to: Table 4-7.1 "Groundwater Ingestion Non-Cancer Hazard Calculations/Arsenic Intake/Exposure" = 6.2E-05

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Ingestion [NC] -2

$$(2.1E - 01) = \frac{(6.2E - 05)}{(3.0E - 04)}$$

Compare to: Table 4-7.1 "Groundwater Ingestion Non-Cancer Hazard Calculations/Arsenic Hazard Quotient" = 2.1E-01

Sample Equations and Calculations for Dermal Absorption from Groundwater by the Park Worker (for Arsenic as a Carcinogen)

Dermal Absorption Intake and Risk Equations (for Arsenic as a Carcinogen)

Dermal Absorption [C] -1 (for inorganics)

$$DA_{event} = CW \times Kp \times CF_2 \times t_{event}$$

Dermal Absorption [C] -2 (for inorganics)

$$DAD = \frac{DA_{event} \times EV \times SA \times EF \times ED}{BW \times AT_C}$$

Dermal Absorption [C] -3

$$ELCR = DAD \times CSF_D$$

Dermal Absorption Intake, Exposure, and Toxicity Parameters (for Arsenic as a Carcinogen and the Park Worker Receptor)

DA _{event}	= Absorbed dose per event	[calculated] (mg/cm ² -event)
CW	= Exposure Point Concentration for Arsenic	(0.011 mg/L)
Kp	= Permeability Coefficient for Arsenic	(1.0E-03 cm/hour)
CF ₂	= Conversion Factor 2	(0.001 L/cm ³)
t _{event}	= Event Duration	(1 hour/event)
DAD	= Dermally Absorbed Dose	[calculated] (mg/kg-day)
EV	= Event Frequency	(1 event/day)
SA	= Skin Surface Area available for contact	(4,447 cm ²)
EF	= Exposure Frequency	(143 days/year)
ED	= Exposure Duration	(25 years)
BW	= Body Weight	(70 kg)
AT _c	= Averaging Time for Carcinogen	(25,550 days)
ELCR	= Excess Lifetime Cancer Risk for dermal absorption	[calculated] (unitless)
CSF _D	= Cancer Slope Factor for Arsenic for dermal absorption	(1.5E+00 (mg/kg-day) ⁻¹)

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Dermal Absorption Intake and Risk Equation Units Check

Dermal Absorption [C] -1

$$\frac{mg}{cm^2 \text{ event}} = \frac{mg}{L} \times \frac{cm}{hour} \times \frac{L}{cm^3} \times \frac{hour}{event}$$

Dermal Absorption [C] -2

$$\frac{mg}{kg \text{ day}} = \frac{\frac{mg}{cm^2 \text{ event}} \times \frac{event}{day} \times cm^2 \times \frac{day}{year} \times year}{kg \times day}$$

Dermal Absorption [C] -3

$$[Unitless] = \frac{mg}{kg \text{ day}} \times \left[\frac{mg}{kg \text{ day}} \right]^{-1}$$

Dermal Absorption Intake and Risk Calculation (for Arsenic as a Carcinogen and the Park Worker Receptor)

Dermal Absorption [C] -1

$$(1.1E - 08) = 0.011 \times (1.0E - 03) \times 0.001 \times 1$$

Compare to: Table 4-4.3 "DAevent Calculated for Arsenic" = 1.1E-08

Dermal Absorption [C] -2

$$(9.8E - 08) = \frac{(1.1E - 08) \times 1 \times 4,447 \times 143 \times 25}{70 \times 25,550}$$

Compare to: Table 4-7.1 "Groundwater Dermal Absorption Cancer Risk Calculations/Arsenic Intake/Exposure" = 9.8E-08

Dermal Absorption [C] -3

$$(1.5E - 07) = (9.8E - 08) \times (1.5E + 00)$$

Compare to: Table 4-7.1 "Groundwater Dermal Absorption Cancer Risk Calculations/ Arsenic Cancer Risk" = 1.5E-07

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Sample Equations and Calculations for Dermal Absorption from Groundwater by the Park Worker (for Arsenic as a Non-Carcinogen)

Dermal Absorption Intake and Risk Equations (for Arsenic as a Non-Carcinogen)

Dermal Absorption [NC] -1 (for inorganics)

$$DA_{event} = CW \times Kp \times CF_2 \times t_{event}$$

Dermal Absorption [NC] -2

$$DAD = \frac{DA_{event} \times EV \times SA \times EF \times ED}{BW \times AT_N}$$

Dermal Absorption [NC] -3

$$HQ = \frac{DAD}{RfD_D}$$

Dermal Absorption Intake, Exposure, and Toxicity Parameters (for Arsenic as a Non-Carcinogen and the Park Worker Receptor)

DA _{event}	= Absorbed dose per event	[calculated] (mg/cm ² -event)
CW	= Exposure Point Concentration for Arsenic	(0.011 mg/L)
Kp	= Permeability Coefficient for Arsenic	(1.0E-03 cm/hour)
CF ₂	= Conversion Factor 2	(0.001 L/cm ³)
t _{event}	= Event Duration	(1 hour/event)
DAD	= Dermal Absorbed Dose	[calculated] (mg/kg-day)
EV	= Event Frequency	(1 event/day)
SA	= Skin Surface Area available for contact	(4,447 cm ²)
EF	= Exposure Frequency	(143 days/year)
ED	= Exposure Duration	(25 years)
BW	= Body Weight	(70 kg)
AT _N	= Averaging Time for Non-Carcinogen	(9,125 days)
HQ	= Hazard Quotient for dermal absorption	[calculated] (unitless)
RfD _D	= Reference Dose for Arsenic for dermal absorption	(3.0E-4 mg/kg-day)

Dermal Absorption Intake and Risk Equation Units Check

Dermal Absorption [C] -1

$$\frac{mg}{cm^2 \text{ event}} = \frac{mg}{L} \times \frac{cm}{hour} \times \frac{L}{cm^3} \times \frac{hour}{event}$$

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Dermal Absorption [C] -2

$$\frac{mg}{kg \ day} = \frac{\frac{mg}{cm^2 \ event} \times \frac{event}{day} \times cm^2 \times \frac{day}{year} \times year}{kg \ x \ day}$$

Dermal Absorption [C] -3

$$[Unitless] = \frac{\frac{mg}{kg \ day}}{\frac{mg}{kg \ day}}$$

Dermal Absorption Intake and Risk Calculation (for Arsenic as a Non-Carcinogen and the Park Worker Receptor)

Dermal Absorption [C] -1

$$(1.1E - 08) = 0.011 \times (1.0E - 03) \times 0.001 \times 1$$

Compare to: Table 4-4.3 “DAevent Calculated for Arsenic” = 1.1E-08

Dermal Absorption [C] -2

$$(2.7E - 07) = \frac{(1.1E - 08) \times 1 \times 4,447 \times 143 \times 25}{70 \times 9,125}$$

Compare to: Table 4-7.1 “Groundwater Dermal Absorption Non-Cancer Hazard Calculations/Arsenic Intake/Exposure” = 2.7E-07

Dermal Absorption [C] -3

$$(9.1E - 04) = \frac{(2.7E - 07)}{(3.0E - 04)}$$

Compare to: Table 4-7.1 “Groundwater Dermal Absorption Non-Cancer Hazard Calculations/ Arsenic Hazard Quotient” = 9.1E-04

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Sample Equations and Calculations for Inhalation of Volatiles from Groundwater by the Adult Resident (for MTBE as a Carcinogen)

Inhalation Exposure and Risk Equations (for MTBE as a Carcinogen)

Inhalation [C] -1

$$EC = CW \times K \times CF$$

Inhalation [C] -2

$$ELCR = EC \times UR$$

Inhalation Exposure and Toxicity Parameters (for MTBE as a Carcinogen and the Adult Resident Receptor)

EC	=	Airborne Exposure Concentration	[calculated] (mg/m ³)
CW	=	Exposure Point Concentration for MTBE	(0.050 mg/L)
K	=	Default Volatilization Constant	(0.0005 (unitless))
CF	=	Conversion Factor	(1000 L/m ³)
ELCR	=	Excess Lifetime Cancer Risk for MTBE inhalation	[calculated] (unitless)
UR	=	Unit Risk for MTBE for the inhalation exposure route	(2.6E-04 (mg/m ³) ⁻¹)

Inhalation Exposure and Risk Equation Units Check

Inhalation [C] -1

$$\frac{mg}{m^3} = \frac{mg}{L} \times [unitless] \times \frac{L}{m^3}$$

Inhalation [C] -2

$$[unitless] = \frac{mg}{m^3} \times \left(\frac{mg}{m^3} \right)^{-1}$$

Inhalation Exposure and Risk Calculation (for MTBE as a Carcinogen and the Adult Resident Receptor)

Inhalation [C] -1

$$(2.5E-02) = 0.049 \times 0.0005 \times 1000$$

Compare to: Table 4-7.3 "Groundwater Inhalation Cancer Risk Calculations/MTBE Intake/Exposure" = 2.5E-02

Inhalation [C] -2

$$(6.4E-06) = (2.5E-02) \times (2.6E-04)$$

Compare to: Table 4-7.3 "Groundwater Inhalation Cancer Risk Calculations/MTBE Cancer Risk" = 6.4E-06

APPENDIX D

Sample Intake/Exposure and Risk/Hazard Calculations: Equations, Units Checks, and Sample Calculations for a Carcinogen and Non-Carcinogen for the Quantitatively Evaluated Exposure Pathways

Sample Equations and Calculations for Inhalation of Volatiles from Groundwater by the Adult Resident (for MTBE as a Non-Carcinogen)

Inhalation Exposure and Risk Equations (for MTBE as a Non-Carcinogen)

Inhalation [NC] -1

$$EC = CW \times K \times CF$$

Inhalation [NC] -2

$$HQ = \frac{EC}{RfC}$$

Inhalation Exposure and Toxicity Parameters (for MTBE as a Non-Carcinogen and the Adult Resident Receptor)

EC	=	Airborne Exposure Concentration	[calculated] (mg/m ³)
CW	=	Exposure Point Concentration for MTBE	(0.050 mg/L)
K	=	Default Volatilization Constant	(0.0005 (unitless))
CF	=	Conversion Factor	(1000 L/m ³)
HQ	=	Hazard Quotient for MTBE inhalation	[calculated] (unitless)
RfC	=	Reference Concentration MTBE for inhalation exposure route	(3.0E+00 mg/m ³)

Inhalation Exposure and Risk Equation Units Check

Inhalation [NC] -1

$$\frac{mg}{m^3} = \frac{mg}{L} \times [unitless] \times \frac{L}{m^3}$$

Inhalation [NC] -2

$$[unitless] = \frac{\frac{mg}{m^3}}{\frac{mg}{m^3}}$$

Inhalation Exposure and Risk Calculation (for MTBE as a Non-Carcinogen and the Adult Resident Receptor)

Inhalation [NC] -1

$$(2.5E-02) = 0.050 \times 0.0005 \times 1000$$

Compare to: Table 4-7.3 "Groundwater Inhalation Non-Cancer Hazard Calculations/MTBE Intake/Exposure"
= 2.5E-02

Inhalation [NC] -2

$$(8.2E-03) = \frac{(2.5E-02)}{(3.0E+00)}$$

Compare to: Table 4-7.3 "Groundwater Inhalation Non-Cancer Hazard Calculations /MTBE Hazard Quotient"
= 8.2E-03

Appendix E
Table E-1 2007 Groundwater Data From USEPA
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID	MW05A	MW05A D	KW01D	KW01S	KW03D	MW06A	MW06B	OW2	OW2P	KEYES
Date Collected	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/24/2007	4/24/2007	4/25/2007	4/23/2007	4/25/2007
Volatile Organics										
1,1,1,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,1-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloro-1,2,2-trifluoroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,3-Trichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,3-Trichloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,4-Trichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,4-Trimethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromo-3-Chloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromoethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3,5-Trimethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2,2-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2-Butanone	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2-Chlorotoluene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2-Hexanone	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Acetone	ND(1.0)	ND(1.0)	2.0J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
4-Chlorotoluene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
4-Methyl-2-pentanone	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Acrylonitrile	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Benzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromodichloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Disulfide	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Tetrachloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dibromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
Table E-1 2007 Groundwater Data From USEPA
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID	MW05A	MW05A D	KW01D	KW01S	KW03D	MW06A	MW06B	OW2	OW2P	KEYES
Date Collected	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/24/2007	4/24/2007	4/25/2007	4/23/2007	4/25/2007
Dibromomethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dichlorodifluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Ethyl Ether	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Ethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Hexachlorobutadiene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Isopropylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
M/P Xylene	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Methyl tert butyl ether	ND(1.0)	ND(1.0)	49	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylene Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
N-Butylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
N-Propylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Napthalene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Ortho Xylene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Para-Isopropyltoluene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Sec-Butylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Styrene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tert-Butylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrahydrofuran	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Toluene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichlorofluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl acetate	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
t-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Semivolatiles Organics										
1,2,4,5-Tetrachlorobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
1,2,4-Trichlorobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
1,2-Dichlorobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
1,3-Dichlorobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
1,3-Dinitrobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
1,4-Dichlorobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
1,4-Naphthoquinone	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
1-Methylnaphthalene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,2'-Oxybis(1-Chloropropane)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,3,4,6-Tetrachlorophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,4,5-Trichlorophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,4,6-Trichlorophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,4-Dichlorophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,4-Dinitrophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)

Appendix E
Table E-1 2007 Groundwater Data From USEPA
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID	MW05A	MW05A D	KW01D	KW01S	KW03D	MW06A	MW06B	OW2	OW2P	KEYES
Date Collected	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/24/2007	4/24/2007	4/25/2007	4/23/2007	4/25/2007
2,4-Dinitrotoluene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,4-Dimethylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(14)	ND(10)
2,6-Dichlorophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2,6-Dinitrotoluene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2-Chloronaphthalene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2-Chlorophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2-Methylnaphthalene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2-Methylphenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2-Nitroaniline	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
2-Nitrophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
3&4-Methylphenol	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(14)	ND(10)
3,3'-Dichlorobenzidine	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
3-Methylcholanthrene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
3-Nitroaniline	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4,6-Dinitro-2-methylphenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4-Bromophenyl-phenylether	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4-Chloro-3-methylphenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4-Chloroaniline	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4-Chlorophenyl-phenylether	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4-Nitroaniline	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4-Nitrophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
4-nitroquinoline-1-oxide	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(14)	ND(10)
Acenaphthene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Acenaphthylene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Acetophenone	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Aniline	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Anthracene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Aramite	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Azobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzidine	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzo(a)anthracene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzo(a)pyrene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzo(b)fluoranthene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzo(g,h,i)perylene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzo(k)fluoranthene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzoic acid	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Benzyl alcohol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Bis(2-Chloroethyl)ether	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
bis(2-Ethylhexyl)phthalate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	230	ND(5)	ND(7)	ND(5)
Butylbenzylphthalate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Carbazole	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Chlorobenzilate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)

Appendix E
 Table E-1 2007 Groundwater Data From USEPA
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Sample ID	MW05A	MW05A D	KW01D	KW01S	KW03D	MW06A	MW06B	OW2	OW2P	KEYES
Date Collected	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/24/2007	4/24/2007	4/25/2007	4/23/2007	4/25/2007
Chrysene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Di-n-Butylphthalate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Di-n-Octylphthalate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Dibenz(a,h)anthracene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Dibenzofuran	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Diethylphthalate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Dimethyl phthalate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Dinoseb	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Ethyl methanesulfonate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Fluoranthene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Fluorene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Hexachlorobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Hexachlorobutadiene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Hexachlorocyclopentadiene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Hexachloroethane	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Hexachloropropene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Indeno(1,2,3-c,d)pyrene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Isodrin	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Isophorone	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Isosafrole	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Kepone	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Methyl methanesulfonate	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
N-Nitrosodiphenylamine	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
N-Nitroso-Di-n-propylamine	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
N-nitrosodimethylamine	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Naphthalene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Nitrobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Pentachlorobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Pentachloronitrobenzene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Pentachlorophenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Phenacetin	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Phenanthrene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Phenol	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Pyrene	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Pyridine	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
Safrole	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)
bis-(2-Chloroethoxy)methane	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(7)	ND(5)

Appendix E
Table E-1 2007 Groundwater Data From USEPA
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID	MW05A	MW05A D	KW01D	KW01S	KW03D	MW06A	MW06B	OW2	OW2P	KEYES
Date Collected	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/23/2007	4/24/2007	4/24/2007	4/25/2007	4/23/2007	4/25/2007
Inorganics										
Aluminum	ND(110)	ND(110)	12000	ND(110)	ND(110)	ND(110)	ND(110)	1200	ND(110)	ND(110)
Antimony	ND(6)	ND(6)	ND(6)	ND(6)	ND(6)	ND(6)	ND(6)	ND(6)	ND(6)	ND(6)
Arsenic	ND(10)	ND(10)	11	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Barium	ND(20)	ND(20)	59	ND(20)	ND(20)	ND(20)	ND(20)	28	ND(20)	ND(20)
Beryllium	ND(4)	ND(4)	ND(4)	ND(4)	ND(4)	ND(4)	ND(4)	ND(4)	ND(4)	ND(4)
Cadmium	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Calcium	16000	16000	4600	19000	20000	19000	8600	11000	21000	8500
Chromium	ND(20)	ND(20)	27	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
Cobalt	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
Copper	ND(20)	ND(20)	21	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
Iron	ND(40)	ND(40)	9900	100	360	40	ND(40)	1100	80	6900
Lead	ND(15)	ND(15)	ND(15)	ND(15)	ND(15)	ND(14)	ND(15)	ND(15)	ND(15)	ND(15)
Magnesium	3400	3500	2400	3600	4000	2700	840	2600	3200	570
Manganese	ND(20)	ND(20)	460	44	26	ND(20)	ND(20)	230	75	68
Nickel	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
Potassium	1800	1700	3300	2200	2100	2500	530	2200	3000	1500
Selenium	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
Silver	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Thallium	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
Vanadium	ND(10)	ND(10)	15	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Zinc	ND(20)	ND(20)	38	ND(20)	ND(20)	25	ND(20)	29	ND(20)	34
total mercury	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)
PCBs										
Aroclor-1016	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1221	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1232	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1242	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1248	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1254	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1260	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1262	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Aroclor-1268	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

Notes:

J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

NA - Sample analysis at this location did not include this analyte.

ND - Analyte was not detected.

The number in parentheses is the associated reporting limit.

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 07/19/07	MW-25B 07/17/07	MW-05A 07/17/07	MW-05BR 07/17/07	MW-05BR DUP 07/17/07	MW-18B 10/16/07	MW-05A 10/15/07	MW-05BR 10/11/07	MW-25B 10/11/07	MW-18B 01/16/08	MW-05A 01/10/08	MW-05BR 01/10/08	MW-06A 01/17/08	MW-06B 01/17/08	MW-25B 01/10/08
Volatile Organics															
1,1,1-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloro-1,2,2-trifluoroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,4-Trichlorobenzene	2.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromo-3-chloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromoethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2-Butanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Hexanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
4-Methyl-2-pentanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Acetone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	4.2 J	ND(5.0)
Benzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromodichloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0 J)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Disulfide	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Tetrachloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethene	0.51 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.53 J	ND(1.0)	ND(1.0)	ND(1.0)	0.44 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cyclohexane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dibromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dichlorodifluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Ethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Isopropylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 07/19/07	MW-25B 07/17/07	MW-05A 07/17/07	MW-05BR 07/17/07	MW-05BR DUP 07/17/07	MW-18B 10/16/07	MW-05A 10/15/07	MW-05BR 10/11/07	MW-25B 10/11/07	MW-18B 01/16/08	MW-05A 01/10/08	MW-05BR 01/10/08	MW-06A 01/17/08	MW-06B 01/17/08	MW-25B 01/10/08
Methyl acetate	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methyl tert butyl ether	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylcyclohexane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylene Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0 J)	ND(1.0 J)	ND(1.0 J)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Styrene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Toluene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	11	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)	ND(1.0)	ND(1.0)	8.4	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichlorofluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Xylenes, Total	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)
Semivolatile Organics															
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Atrazine	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 07/19/07	MW-25B 07/17/07	MW-05A 07/17/07	MW-05BR 07/17/07	MW-05BR DUP 07/17/07	MW-18B 10/16/07	MW-05A 10/15/07	MW-05BR 10/11/07	MW-25B 10/11/07	MW-18B 01/16/08	MW-05A 01/10/08	MW-05BR 01/10/08	MW-06A 01/17/08	MW-06B 01/17/08	MW-25B 01/10/08
Benzaldehyde	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Biphenyl	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy) methane	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl) ether	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	2.0 J	ND(9.0)	NA	NA	NA	NA	NA	NA
Caprolactam	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Diethyl phthalate	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	NA	NA	NA	NA	NA	0.30 J	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	NA	NA	NA	NA	NA	0.60 J	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
N-Nitroso-Di-n-propylamine	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	ND(10)	ND(9.0)	ND(10)	ND(9.0)	NA	NA	NA	NA	NA	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 07/19/07	MW-25B 07/17/07	MW-05A 07/17/07	MW-05BR 07/17/07	MW-05BR DUP 07/17/07	MW-18B 10/16/07	MW-05A 10/15/07	MW-05BR 10/11/07	MW-25B 10/11/07	MW-18B 01/16/08	MW-05A 01/10/08	MW-05BR 01/10/08	MW-06A 01/17/08	MW-06B 01/17/08	MW-25B 01/10/08
Inorganics															
Aluminum	NA	NA	NA	NA	NA	ND(200)	ND(200)	413	434	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	48.6	18.2	21.3	19.9	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	ND(1.00)	ND(1.00)	ND(1.00)	ND(1.00)	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	37,300	16,100	16,900	10,600	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	131	129	942	120	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	3,290	3,640	2,740	933	NA	NA	NA	NA	NA	NA
Manganese	384 J	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	180	4.10	6.60	11.4	176	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)
Mercury	NA	NA	NA	NA	NA	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	4,460	2,210	3,110	2,740	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	ND(3.00 J)	ND(3.00 J)	ND(3.00)	ND(3.00)	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	24,200	50,200	9,110	19,600	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 07/19/07	MW-25B 07/17/07	MW-05A 07/17/07	MW-05BR 07/17/07	MW-05BR DUP 07/17/07	MW-18B 10/16/07	MW-05A 10/15/07	MW-05BR 10/11/07	MW-25B 10/11/07	MW-18B 01/16/08	MW-05A 01/10/08	MW-05BR 01/10/08	MW-06A 01/17/08	MW-06B 01/17/08	MW-25B 01/10/08
Inorganics-Filtered*															
Aluminum	NA	NA	NA	NA	NA	ND(200)	ND(200)	ND(200)	247	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	41.7	17.0	19.7	19.0	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	ND(1.00)	ND(1.00)	ND(1.00)	ND(1.00)	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	33,500 J	16,600 J	16,900	10,600	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	119	ND(50.0)	ND(50.0)	ND(50.0)	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	2,960	3,650	2,710	925	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	160	4.40	4.60	12.4	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	3,980	2,180	3,130	2,840	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	22,600	53,200	9,120	18,400	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA	NA	NA	NA	NA	NA
PCBs															
Aroclor 1016	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)
Aroclor 1221	0.91	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	2.2 J	ND(0.061)	ND(0.062)	ND(0.061)	1.7 J	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)
Aroclor 1232	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)
Aroclor 1242	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)
Aroclor 1248	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)
Aroclor 1254	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)
Aroclor 1260	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	0.075	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)
Total PCBs	0.91	ND(0.062)	ND(0.062)	ND(0.062)	ND(0.062)	2.3 J	ND(0.061)	ND(0.062)	ND(0.061)	1.7 J	ND(0.062)	ND(0.061)	ND(0.063)	ND(0.062)	ND(0.062)

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 04/04/08	MW-05A 04/07/08	MW-05BR 04/07/08	MW-06A 04/02/08	MW-06B 04/02/08	MW-25B 04/04/08	MW-18B 07/15/08	MW-05A 07/16/08	MW-05A DUP 07/16/08	MW-05BR 07/16/08	MW-06A 07/15/08	MW-06B 07/15/08	MW-25B 07/17/08	MW-18B 10/08/08	MW-05A 10/08/08	MW-05BR 10/08/08	MW-06A 10/07/08
Volatile Organics																	
1,1,1-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloro-1,2,2-trifluoroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethene	ND(1.0)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,4-Trichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.9	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.8	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromo-3-chloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromoethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2-Butanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Hexanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
4-Methyl-2-pentanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Acetone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzene	ND(1.0)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromodichloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Disulfide	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Tetrachloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroform	0.45 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.88 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.88 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.93 J	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cyclohexane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dibromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dichlorodifluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Ethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Isopropylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 04/04/08	MW-05A 04/07/08	MW-05BR 04/07/08	MW-06A 04/02/08	MW-06B 04/02/08	MW-25B 04/04/08	MW-18B 07/15/08	MW-05A 07/16/08	MW-05A DUP 07/16/08	MW-05BR 07/16/08	MW-06A 07/15/08	MW-06B 07/15/08	MW-25B 07/17/08	MW-18B 10/08/08	MW-05A 10/08/08	MW-05BR 10/08/08	MW-06A 10/07/08
Methyl acetate	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methyl tert butyl ether	0.48 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylcyclohexane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylene Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Styrene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Toluene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	6.4	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	20	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	15	ND(1.0)	ND(1.0)	ND(1.0)
Trichlorofluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Xylenes, Total	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)	ND(3.0)
Semivolatile Organics																	
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Atrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 04/04/08	MW-05A 04/07/08	MW-05BR 04/07/08	MW-06A 04/02/08	MW-06B 04/02/08	MW-25B 04/04/08	MW-18B 07/15/08	MW-05A 07/16/08	MW-05A DUP 07/16/08	MW-05BR 07/16/08	MW-06A 07/15/08	MW-06B 07/15/08	MW-25B 07/17/08	MW-18B 10/08/08	MW-05A 10/08/08	MW-05BR 10/08/08	MW-06A 10/07/08
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy) methane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl) ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Caprolactam	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-Octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-c,d)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-Di-n-propylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 04/04/08	MW-05A 04/07/08	MW-05BR 04/07/08	MW-06A 04/02/08	MW-06B 04/02/08	MW-25B 04/04/08	MW-18B 07/15/08	MW-05A 07/16/08	MW-05A DUP 07/16/08	MW-05BR 07/16/08	MW-06A 07/15/08	MW-06B 07/15/08	MW-25B 07/17/08	MW-18B 10/08/08	MW-05A 10/08/08	MW-05BR 10/08/08	MW-06A 10/07/08
Inorganics																	
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	ND(15.0)	ND(15.0)	23.2	ND(15.0)	ND(15.0)	ND(15.0)	197	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	172	ND(15.0)	18.6	ND(15.0)
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-18B 04/04/08	MW-05A 04/07/08	MW-05BR 04/07/08	MW-06A 04/02/08	MW-06B 04/02/08	MW-25B 04/04/08	MW-18B 07/15/08	MW-05A 07/16/08	MW-05A DUP 07/16/08	MW-05BR 07/16/08	MW-06A 07/15/08	MW-06B 07/15/08	MW-25B 07/17/08	MW-18B 10/08/08	MW-05A 10/08/08	MW-05BR 10/08/08	MW-06A 10/07/08
Inorganics-Filtered*																	
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs																	
Aroclor 1016	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)
Aroclor 1221	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	1.3 JN	ND(0.061)	ND(0.062)
Aroclor 1232	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)
Aroclor 1242	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	0.046 JN	ND(0.061)	ND(0.062)
Aroclor 1248	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)
Aroclor 1254	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	0.061	ND(0.061)	ND(0.061)	ND(0.062)
Aroclor 1260	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)
Total PCBs	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.061)	ND(0.062)	ND(0.061)	0.11 JN	1.3 JN	ND(0.061)	ND(0.062)

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-06B 10/07/08	MW-25B 10/08/08	MW-18B 01/14/09	MW-18B 04/15/09	MW-18B 07/15/09	MW-18B 10/02/09	MW-05A 09/29/09	MW-05BR 09/28/09	MW-06A 10/08/09	MW-06B 10/08/09	MW-25B 10/12/09	MW-18B 01/04/10
Volatile Organics												
1,1,1-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloro-1,2,2-trifluoroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,4-Trichlorobenzene	ND(1.0)	ND(1.0)	2.0	2.3	2.7	4.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.2
1,2-Dibromo-3-chloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromoethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	0.85 J	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	NA
1,2-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
2-Butanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Hexanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
4-Methyl-2-pentanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Acetone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromodichloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ND(1.0)	ND(1.0)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Disulfide	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Tetrachloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	0.50 J	0.46 J	0.65 J	0.85 J	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.60 J
cis-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Cyclohexane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dibromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dichlorodifluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Ethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Isopropylbenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-06B 10/07/08	MW-25B 10/08/08	MW-18B 01/14/09	MW-18B 04/15/09	MW-18B 07/15/09	MW-18B 10/02/09	MW-05A 09/29/09	MW-05BR 09/28/09	MW-06A 10/08/09	MW-06B 10/08/09	MW-25B 10/12/09	MW-18B 01/04/10
Methyl acetate	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methyl tert butyl ether	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylcyclohexane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Methylene Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Styrene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Toluene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	12	11	11	18	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	7.8
Trichlorofluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl acetate	NA	NA	NA	NA	NA	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	NA
Vinyl chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0 J)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Xylenes, Total	ND(3.0)	ND(3.0)	ND(3.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Semivolatile Organics												
2,2'-Oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2-Chlorophenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2-Methylphenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
2-Nitroaniline	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	NA
2-Nitrophenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7 J)	ND(9.4 J)	ND(9.7)	ND(9.5)	ND(9.4)	NA
3-Nitroaniline	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	NA
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
4-Chloroaniline	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
4-Methylphenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
4-Nitroaniline	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	NA
4-Nitrophenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Acenaphthene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Acenaphthylene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Acetophenone	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Anthracene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Atrazine	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-06B 10/07/08	MW-25B 10/08/08	MW-18B 01/14/09	MW-18B 04/15/09	MW-18B 07/15/09	MW-18B 10/02/09	MW-05A 09/29/09	MW-05BR 09/28/09	MW-06A 10/08/09	MW-06B 10/08/09	MW-25B 10/12/09	MW-18B 01/04/10
Benzaldehyde	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Biphenyl	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Bis(2-chloroethoxy) methane	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Bis(2-chloroethyl) ether	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Butyl benzyl phthalate	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Caprolactam	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Carbazole	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Chrysene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Dibenzofuran	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Diethyl phthalate	NA	NA	NA	NA	NA	ND(4.7)	ND(4.9)	ND(4.7)	ND(4.9)	0.54 J	ND(4.7)	NA
Dimethyl phthalate	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Di-n-Butylphthalate	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	0.43 J	0.29 J	ND(9.4)	NA
Di-n-Octylphthalate	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Fluoranthene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Fluorene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Hexachlorobenzene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Hexachloroethane	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Indeno(1,2,3-c,d)pyrene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Isophorone	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Naphthalene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Nitrobenzene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
N-Nitroso-Di-n-propylamine	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Pentachlorophenol	NA	NA	NA	NA	NA	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	ND(24)	NA
Phenanthrene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Phenol	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA
Pyrene	NA	NA	NA	NA	NA	ND(9.4)	ND(9.7)	ND(9.4)	ND(9.7)	ND(9.5)	ND(9.4)	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-06B 10/07/08	MW-25B 10/08/08	MW-18B 01/14/09	MW-18B 04/15/09	MW-18B 07/15/09	MW-18B 10/02/09	MW-05A 09/29/09	MW-05BR 09/28/09	MW-06A 10/08/09	MW-06B 10/08/09	MW-25B 10/12/09	MW-18B 01/04/10
Inorganics												
Aluminum	NA	NA	NA	NA	NA	53.0 J	100 J	ND(200)	ND(200)	ND(200)	ND(200)	NA
Antimony	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA
Arsenic	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA
Barium	NA	NA	NA	NA	NA	49.7	16.8	20.6	21.8	8.90	51.1	NA
Beryllium	NA	NA	NA	NA	NA	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	NA
Cadmium	NA	NA	NA	NA	NA	ND(1.00)	ND(1.00)	ND(1.00)	ND(1.00)	ND(1.00)	ND(1.00)	NA
Calcium	NA	NA	NA	NA	NA	38,800	16,200	15,700	39,500	19,400	17,900	NA
Chromium	NA	NA	NA	NA	NA	ND(4.00)	ND(4.00)	ND(4.00)	1.00 J	0.900 J	1.10 J	NA
Cobalt	NA	NA	NA	NA	NA	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	1.40 J	NA
Copper	NA	NA	NA	NA	NA	3.70 J	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	1.60 J	NA
Cyanide	NA	NA	NA	NA	NA	ND(20.0)	ND(0.100)	ND(0.100)	ND(20.0)	ND(10.0)	ND(10.0)	NA
Iron	NA	NA	NA	NA	NA	118	76.0	ND(58.0)	96.0	ND(50.0)	5,270	NA
Lead	NA	NA	NA	NA	NA	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA
Magnesium	NA	NA	NA	NA	NA	3,300	3,630	2,660	6,020	2,140	1,460	NA
Manganese	ND(15.0)	ND(15.0)	170	171	197	223	2.00 J	2.20 J	6.90	0.900 J	136	188*
Mercury	NA	NA	NA	NA	NA	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	NA
Nickel	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	1.80 J	NA
Potassium	NA	NA	NA	NA	NA	4,690	1,980	2,880	4,400	1,020	4,030	NA
Selenium	NA	NA	NA	NA	NA	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	NA
Silver	NA	NA	NA	NA	NA	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)	NA
Sodium	NA	NA	NA	NA	NA	26,900	50,900	9,700	57,900	10,300	52,600 J	NA
Thallium	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA
Vanadium	NA	NA	NA	NA	NA	2.10 J	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA
Zinc	NA	NA	NA	NA	NA	2.60 J	5.60 J	ND(10.0)	5.30 J	1.90 J	10.5	NA

Appendix E
Table E-2 Select Groundwater Data from ARCADIS/GE Water Monitoring Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	MW-06B 10/07/08	MW-25B 10/08/08	MW-18B 01/14/09	MW-18B 04/15/09	MW-18B 07/15/09	MW-18B 10/02/09	MW-05A 09/29/09	MW-05BR 09/28/09	MW-06A 10/08/09	MW-06B 10/08/09	MW-25B 10/12/09	MW-18B 01/04/10
Inorganics-Filtered*												
Aluminum	NA	NA	NA	NA	NA	52.0 J	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)	NA
Antimony	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA
Arsenic	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA
Barium	NA	NA	NA	NA	NA	50.8	17.2	21.4	22.8	9.40	57.6	NA
Beryllium	NA	NA	NA	NA	NA	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)	NA
Cadmium	NA	NA	NA	NA	NA	ND(1.00)	ND(1.00)	ND(1.00)	ND(1.00)	ND(1.00)	0.300 J	NA
Calcium	NA	NA	NA	NA	NA	39,000	16,200	15,900	43,600 J	19,400	18,600	NA
Chromium	NA	NA	NA	NA	NA	0.900 J	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	NA
Cobalt	NA	NA	NA	NA	NA	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	ND(4.00)	1.40 J	NA
Copper	NA	NA	NA	NA	NA	5.10 J	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA
Cyanide	NA	NA	NA	NA	NA	ND(20.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	NA
Iron	NA	NA	NA	NA	NA	143	ND(50.0)	ND(50.0)	ND(50.0)	ND(50.0)	2,890	NA
Lead	NA	NA	NA	NA	NA	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA
Magnesium	NA	NA	NA	NA	NA	3,330	3,660	2,730	6,670 J	2,100	1,540	NA
Manganese	NA	NA	NA	NA	NA	223	ND(3.00)	ND(3.00)	ND(3.00)	1.00 J	141	NA
Mercury	NA	NA	NA	NA	NA	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	ND(0.200)	NA
Nickel	NA	NA	NA	NA	NA	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)	2.30 J	NA
Potassium	NA	NA	NA	NA	NA	4,710	2,030	3,030	4,640	1,080	4,380	NA
Selenium	NA	NA	NA	NA	NA	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	ND(15.0)	NA
Silver	NA	NA	NA	NA	NA	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)	ND(3.00)	NA
Sodium	NA	NA	NA	NA	NA	26,300	50,600	9,800	61,300	8,600	58,500 J	NA
Thallium	NA	NA	NA	NA	NA	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	ND(20.0)	NA
Vanadium	NA	NA	NA	NA	NA	2.20 J	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	ND(5.00)	NA
Zinc	NA	NA	NA	NA	NA	3.30 J	3.00 J	ND(10.0)	ND(10.0)	1.60 J	11.4	NA
PCBs												
Aroclor 1016	ND(0.062)	ND(0.061)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	ND(0.49)
Aroclor 1221	ND(0.062)	ND(0.061)	2.3	2.3 JN	3.3 J	7.3	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	11 J
Aroclor 1232	ND(0.062)	ND(0.061)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	ND(0.49)
Aroclor 1242	ND(0.062)	ND(0.061)	ND(0.47)	ND(0.47)	ND(0.47)	4.9 J	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	ND(0.49)
Aroclor 1248	ND(0.062)	ND(0.061)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	ND(0.49)
Aroclor 1254	ND(0.062)	ND(0.061)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	ND(0.49)
Aroclor 1260	ND(0.062)	ND(0.061)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	ND(0.49)
Total PCBs	ND(0.062)	ND(0.061)	2.3	2.3 JN	3.3 J	12 J	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.48)	ND(0.47)	11 J

* = Filtered inorganics data was not used in the risk assessment.

EB - Compound considered non-detect at the listed value due to associated equipment blank contamination.

J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

NA - Sample analysis at this location did not include this analyte.

ND - Analyte was not detected. The number in parentheses is the associated reporting limit.

Appendix E
Table E-3 2009 Groundwater Data from USEPA
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	KW03D 10/29/2009	KW03D-DUP 10/29/2009	KEYES 10/29/2009
Volatile Organics			
1,1,1,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)
1,1,1-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethylene	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)
1,2,3-Trichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)
1,2,3-Trichloropropane	ND(1.0)	ND(1.0)	ND(1.0)
1,2,4-Trichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)
1,2,4-Trimethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromo-3-Chloropropane	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromoethane	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)
1,3,5-Trimethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)
2,2-Dichloropropane	ND(1.0)	ND(1.0)	ND(1.0)
2-Butanone (MEK)	ND(1.0)	ND(1.0)	ND(1.0)
2-Chlorotoluene	ND(1.0)	ND(1.0)	ND(1.0)
2-Hexanone	ND(1.0)	ND(1.0)	ND(1.0)
2-Propanone (acetone)	ND(1.0)	1.7	ND(1.0)
4-Chlorotoluene	ND(1.0)	ND(1.0)	ND(1.0)
4-Methyl-2-Pentanone(MIBK)	ND(1.0)	ND(1.0)	ND(1.0)
Acrylonitrile	ND(1.0)	ND(1.0)	ND(1.0)
Benzene	ND(1.0)	ND(1.0)	ND(1.0)
Bromobenzene	ND(1.0)	ND(1.0)	ND(1.0)
Bromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)
Bromodichloromethane	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,3-dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)
Carbon Disulfide	ND(1.0)	ND(1.0)	ND(1.0)
Carbon tetrachloride	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ND(1.0)	ND(1.0)	ND(1.0)
Chloroform	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethylene	ND(1.0)	ND(1.0)	ND(1.0)
Dibromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)
Dibromomethane	ND(1.0)	ND(1.0)	ND(1.0)
Dichlorodifluoromethane	ND(1.0)	ND(1.0)	ND(1.0)
Ethyl Ether	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
 Table E-3 2009 Groundwater Data from USEPA
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Sample ID	KW03D	KW03D-DUP	KEYES
Date Collected	10/29/2009	10/29/2009	10/29/2009
Ethylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
Hexachlorobutadiene	ND(1.0)	ND(1.0)	ND(1.0)
Isopropylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
M/P Xylene	ND(2.0)	ND(2.0)	ND(2.0)
Methylene Chloride	ND(1.0)	ND(1.0)	ND(1.0)
Methyl-tert-Butyl Ether	ND(1.0)	ND(1.0)	ND(1.0)
Naphthalene	ND(1.0)	ND(1.0)	ND(1.0)
N-Butylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
N-Propylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
Ortho Xylene	ND(1.0)	ND(1.0)	ND(1.0)
Para-Isopropyltoluene	ND(1.0)	ND(1.0)	ND(1.0)
Sec-Butylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
Styrene	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)
Tert-Butylbenzene	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethylene	ND(1.0)	ND(1.0)	ND(1.0)
Tetrahydrofuran	ND(1.0)	ND(1.0)	ND(1.0)
Toluene	ND(1.0)	ND(1.0)	ND(1.0)
Trans-1,2-Dichloroethylene	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethylene	ND(1.0)	ND(1.0)	ND(1.0)
Trichlorofluoromethane	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Acetate	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)
Semivolatile Organics			
1,2,4,5-Tetrachlorobenzene	ND(2.5)	ND(2.5)	NA
1,2,4-Trichlorobenzene	ND(2.5)	ND(2.5)	NA
1,2-Dichlorobenzene	ND(2.5)	ND(2.5)	NA
1,3-Dichlorobenzene	ND(2.5)	ND(2.5)	NA
1,3-Dinitrobenzene	ND(2.5)	ND(2.5)	NA
1,4-Dichlorobenzene	ND(2.5)	ND(2.5)	NA
1,4-Naphthoquinone	ND(2.5)	ND(2.5)	NA
1-Methylnaphthalene	ND(2.5)	ND(2.5)	NA
2,2'-oxybis(1-chloropropane)	ND(2.5)	ND(2.5)	NA
2,3,4,6-Tetrachlorophenol	ND(2.5)	ND(2.5)	NA
2,4,5-Trichlorophenol	ND(2.5)	ND(2.5)	NA
2,4,6-Trichlorophenol	ND(2.5)	ND(2.5)	NA
2,4-Dichlorophenol	ND(2.5)	ND(2.5)	NA
2,4-dimethylphenol	ND(5.0)	ND(5.0)	NA
2,4-Dinitrophenol	ND(20)	ND(20)	NA
2,4-Dinitrotoluene	ND(2.5)	ND(2.5)	NA
2,6-Dichlorophenol	ND(2.5)	ND(2.5)	NA
2,6-Dinitrotoluene	ND(2.5)	ND(2.5)	NA
2-Chloronaphthalene	ND(2.5)	ND(2.5)	NA
2-Chlorophenol	ND(2.5)	ND(2.5)	NA
2-Methylnaphthalene	ND(2.5)	ND(2.5)	NA
2-Methylphenol	ND(2.5)	ND(2.5)	NA
2-Nitroaniline	ND(2.5)	ND(2.5)	NA
2-Nitrophenol	ND(2.5)	ND(2.5)	NA

Appendix E
 Table E-3 2009 Groundwater Data from USEPA
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Sample ID	KW03D	KW03D-DUP	KEYES
Date Collected	10/29/2009	10/29/2009	10/29/2009
3&4-Methylphenol	ND(2.5)	ND(2.5)	NA
3,3'-Dichlorobenzidine	ND(2.5)	ND(2.5)	NA
3-Methylcholanthrene	ND(2.5)	ND(2.5)	NA
3-Nitroaniline	ND(2.5)	ND(2.5)	NA
4,6-Dinitro-2-methylphenol	ND(2.5)	ND(2.5)	NA
4-Bromophenyl-phenylether	ND(2.5)	ND(2.5)	NA
4-Chloro-3-methylphenol	ND(2.5)	ND(2.5)	NA
4-Chloroaniline	ND(2.5)	ND(2.5)	NA
4-Chlorophenyl-phenylether	ND(2.5)	ND(2.5)	NA
4-Nitroaniline	ND(2.5)	ND(2.5)	NA
4-Nitrophenol	ND(2.5)	ND(2.5)	NA
4-nitroquinoline-1-oxide	ND(20)	ND(2.5)	NA
Acenaphthene	ND(2.5)	ND(2.5)	NA
Acenaphthylene	ND(2.5)	ND(2.5)	NA
Acetophenone	ND(2.5)	ND(2.5)	NA
Aniline	ND(2.5)	ND(2.5)	NA
Anthracene	ND(2.5)	ND(2.5)	NA
Aramite	ND(2.5)	ND(2.5)	NA
Azobenzene	ND(2.5)	ND(2.5)	NA
Benzidine	ND(2.5)	ND(2.5)	NA
Benzo(a)anthracene	ND(2.5)	ND(2.5)	NA
Benzo(a)pyrene	ND(2.5)	ND(2.5)	NA
Benzo(b)fluoranthene	ND(2.5)	ND(2.5)	NA
Benzo(g,h,i)perylene	ND(2.5)	ND(2.5)	NA
Benzo(k)fluoranthene	ND(2.5)	ND(2.5)	NA
Benzoic acid	ND(2.5)	ND(2.5)	NA
Benzyl alcohol	ND(2.5)	ND(2.5)	NA
bis(-2-Chloroethoxy)methane	ND(2.5)	ND(2.5)	NA
Bis(2-Chloroethyl)ether	ND(2.5)	ND(2.5)	NA
Bis(2-ethylhexyl)phthalate	ND(2.5)	2.5	NA
Butylbenzylphthalate	ND(2.5)	ND(2.5)	NA
Carbazole	ND(2.5)	ND(2.5)	NA
Chlorobenzilate	ND(2.5)	ND(2.5)	NA
Chrysene	ND(2.5)	ND(2.5)	NA
Dibenz(a,h)anthracene	ND(2.5)	ND(2.5)	NA
Dibenzofuran	ND(2.5)	ND(2.5)	NA
Diethylphthalate	ND(2.5)	ND(2.5)	NA
Dimethyl phthalate	ND(2.5)	ND(2.5)	NA
Di-n-butylphthalate	ND(2.5)	ND(2.5)	NA
Di-n-octyl phthalate	ND(2.5)	ND(2.5)	NA
Dinoseb	ND(2.5)	ND(2.5)	NA
Ethyl methanesulfonate	ND(2.5)	ND(2.5)	NA
Fluoranthene	ND(2.5)	ND(2.5)	NA
Fluorene	ND(2.5)	ND(2.5)	NA

Appendix E
 Table E-3 2009 Groundwater Data from USEPA
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Sample ID	KW03D	KW03D-DUP	KEYES
Date Collected	10/29/2009	10/29/2009	10/29/2009
Hexachlorobenzene	ND(2.5)	ND(2.5)	NA
Hexachlorobutadiene	ND(2.5)	ND(2.5)	NA
Hexachlorocyclopentadiene	ND(2.5)	ND(2.5)	NA
Hexachloroethane	ND(2.5)	ND(2.5)	NA
Hexachloropropene	ND(2.5)	ND(2.5)	NA
Indeno(1,2,3-cd)pyrene	ND(2.5)	ND(2.5)	NA
Isodrin	ND(2.5)	ND(2.5)	NA
Isophorone	ND(2.5)	ND(2.5)	NA
Isosafrole	ND(2.5)	ND(2.5)	NA
Kepone	ND(5.0)	ND(5.0)	NA
Methyl methanesulfonate	ND(2.5)	ND(2.5)	NA
Naphthalene	ND(2.5)	ND(2.5)	NA
Nitrobenzene	ND(2.5)	ND(2.5)	NA
N-nitrosodimethylamine	ND(2.5)	ND(2.5)	NA
N-nitroso-di-n-propylamine	ND(2.5)	ND(2.5)	NA
N-Nitrosodiphenylamine	ND(2.5)	ND(2.5)	NA
Pentachlorobenzene	ND(2.5)	ND(2.5)	NA
Pentachloronitrobenzene	ND(2.5)	ND(2.5)	NA
Pentachlorophenol	ND(2.5)	ND(2.5)	NA
Phenacetin	ND(2.5)	ND(2.5)	NA
Phenanthrene	ND(2.5)	ND(2.5)	NA
Phenol	ND(2.5)	ND(2.5)	NA
Pyrene	ND(2.5)	ND(2.5)	NA
Pyridine	ND(2.5)	ND(2.5)	NA
Safrole	ND(2.5)	ND(2.5)	NA
Inorganics			
Aluminum	ND(110)	ND(110)	ND(110)
Antimony	ND(7.5)	ND(7.5)	ND(7.5)
Arsenic	ND(10)	ND(10)	ND(10)
Barium	20	20	ND(15)
Beryllium	ND(5)	ND(5)	ND(5)
Cadmium	ND(5)	ND(5)	ND(5)
Calcium	19000	19000	8400
Chromium	ND(20)	ND(20)	ND(20)
Cobalt	ND(20)	ND(20)	ND(20)
Copper	ND(20)	ND(20)	ND(20)
Iron	690	460	2000
Lead	ND(15)	ND(15)	ND(15)
Magnesium	3700	3600	550
Manganese	ND(20)	ND(20)	30
Nickel	ND(20)	ND(20)	ND(20)
Potassium	2500	2600	1800
Selenium	ND(20)	ND(20)	ND(20)
Silver	ND(10)	ND(10)	ND(10)
Sodium	45000	45000	25000
Thallium	ND(20)	ND(20)	ND(20)
Vanadium	ND(20)	ND(20)	ND(20)
Zinc	ND(60)	ND(60)	ND(60)

Appendix E
 Table E-3 2009 Groundwater Data from USEPA
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Sample ID	KW03D	KW03D-DUP	KEYES
Date Collected	10/29/2009	10/29/2009	10/29/2009
PCBs			
Aroclor-1016	ND(0.55)	ND(0.55)	NA
Aroclor-1221	ND(0.55)	ND(0.55)	NA
Aroclor-1232	ND(0.55)	ND(0.55)	NA
Aroclor-1242	ND(0.55)	ND(0.55)	NA
Aroclor-1248	ND(0.55)	ND(0.55)	NA
Aroclor-1254	ND(0.55)	ND(0.55)	NA
Aroclor-1260	ND(0.55)	ND(0.55)	NA
Aroclor-1262	ND(0.55)	ND(0.55)	NA
Aroclor-1268	ND(0.55)	ND(0.55)	NA

Notes:

NA - Sample analysis at this location did not include this analyte.

ND - Analyte was not detected. The number in parentheses is the associated reporting limit.

J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

Appendix E
Table E-4 Select Groundwater Data from Xtramart Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID	XM MW-10	XM MW-13	XM MW-10	XM MW-11	XM MW-13	XM MW-10	XM MW-11	XM MW-13
Date Collected	04/16/2007	04/16/2007	10/31/2007	10/31/2007	10/31/2007	04/08/2008	04/08/2008	04/08/2008
Volatile Organics								
Acetone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzene	ND(0.5)	ND(0.5)	5.1	ND(0.5)	ND(0.5)	0.63	ND(0.5)	ND(0.5)
Bromobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Bromochloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Bromodichloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
2-Butanone (MEK)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
n-Butylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
sec-Butylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
tert-Butylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Carbon disulfide	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Carbon tetrachloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Chloroform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
o-Chlorotoluene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
p-Chlorotoluene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Di-Isopropyl ether	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,2-Dibromo-3-chloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Dibromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromoethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,2-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dichlorodifluoromethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,1-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
Table E-4 Select Groundwater Data from Xtramart Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID	XM MW-10	XM MW-13	XM MW-10	XM MW-11	XM MW-13	XM MW-10	XM MW-11	XM MW-13
Date Collected	04/16/2007	04/16/2007	10/31/2007	10/31/2007	10/31/2007	04/08/2008	04/08/2008	04/08/2008
1,2-Dichloropropane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,3-Dichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	NA	NA	NA
2,2-Dichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,3-Dichloropropene	NA	NA	NA	NA	NA	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dioxane	NA	NA	NA	NA	NA	ND(25)	ND(25)	ND(25)
cis-1,3-Dichloropropene	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	NA	NA	NA
trans-1,3-Dichloropropene	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	NA	NA	NA
Ethyl Ether	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Ethylbenzene	ND(1.0)	ND(1.0)	59.8	ND(1.0)	ND(1.0)	16.1	ND(1.0)	ND(1.0)
Hexachlorobutadiene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Hexanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Iodomethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	NA	NA	NA
Isopropylbenzene	ND(5.0)	ND(5.0)	6.3	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
p-Isopropyltoluene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methyl Tert Butyl Ether	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
4-Methyl-2-pentanone (MIBK)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene bromide	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene chloride	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Naphthalene	ND(5.0)	ND(5.0)	13.7	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
n-Propylbenzene	ND(5.0)	ND(5.0)	15.7	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Styrene	ND(5.0)	ND(5.0)	5.8	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
tert-Amyl Methyl Ether	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Tert Butyl Alcohol	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)
tert-Butyl Ethyl Ether	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,1,1,2-Tetrachloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrahydrofuran	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Toluene	ND(1.0)	ND(1.0)	11.6	ND(1.0)	ND(1.0)	11.8	ND(1.0)	ND(1.0)
1,2,3-Trichlorobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2,4-Trichlorobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,1-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
 Table E-4 Select Groundwater Data from Xtramart Reports
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Sample ID Date Collected	XM MW-10 04/16/2007	XM MW-13 04/16/2007	XM MW-10 10/31/2007	XM MW-11 10/31/2007	XM MW-13 10/31/2007	XM MW-10 04/08/2008	XM MW-11 04/08/2008	XM MW-13 04/08/2008
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichlorofluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,3-Trichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2,4-Trimethylbenzene	ND(5.0)	ND(5.0)	11.7	ND(5.0)	ND(5.0)	9.6	ND(5.0)	ND(5.0)
1,3,5-Trimethylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	8.3	ND(5.0)	ND(5.0)
Vinyl Acetate	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	NA	NA	NA
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Xylene (total)	NA	NA	NA	NA	NA	19.8	ND(1.0)	ND(1.0)
m,p-Xylene	ND(1.0)	ND(1.0)	14.3	ND(1.0)	ND(1.0)	NA	NA	NA
o-Xylene	ND(1.0)	ND(1.0)	6.8	ND(1.0)	ND(1.0)	NA	NA	NA
1,2-Dibromoethane (via method 8011)	NA	NA	NA	NA	NA	0.020	NA	NA

Appendix E
Table E-4 Select Groundwater Data from Xtramart Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	XM MW-10 10/06/2008	XM MW-11 10/06/2008	XM MW-13 10/06/2008	XM MW-10 04/01/2009	XM MW-11 04/01/2009	XM MW-13 04/01/2009	XM MW-10 10/01/2009	XM MW-11 10/01/2009	XM MW-13 10/01/2009
Volatile Organics									
Acetone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Benzene	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Bromobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Bromochloromethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Bromodichloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromoform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Bromomethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
2-Butanone (MEK)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
n-Butylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
sec-Butylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	21.1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
tert-Butylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Carbon disulfide	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Carbon tetrachloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloroethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Chloroform	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chloromethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
o-Chlorotoluene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
p-Chlorotoluene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Di-Isopropyl ether	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,2-Dibromo-3-chloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Dibromochloromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dibromoethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,2-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dichlorobenzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Dichlorodifluoromethane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,1-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
trans-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
Table E-4 Select Groundwater Data from Xtramart Reports
Final Remedial Investigation Report
Operable Unit 2, Fletcher's Paint Works and Storage Facility
Milford, New Hampshire

Sample ID Date Collected	XM MW-10 10/06/2008	XM MW-11 10/06/2008	XM MW-13 10/06/2008	XM MW-10 04/01/2009	XM MW-11 04/01/2009	XM MW-13 04/01/2009	XM MW-10 10/01/2009	XM MW-11 10/01/2009	XM MW-13 10/01/2009
1,2-Dichloropropane	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1-Dichloropropene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,3-Dichloropropene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,4-Dioxane	ND(25)	ND(25)	ND(25)	ND(25)	ND(25)	ND(25)	ND(25)	ND(25)	ND(25)
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Ether	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Ethylbenzene	19.0	ND(1.0)	ND(1.0)	30.3	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Hexachlorobutadiene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
2-Hexanone	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
p-Isopropyltoluene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methyl Tert Butyl Ether	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
4-Methyl-2-pentanone (MIBK)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene bromide	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Methylene chloride	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Naphthalene	5.6	ND(5.0)	ND(5.0)	5.1	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
n-Propylbenzene	8.6	ND(5.0)	ND(5.0)	6.7	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Styrene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
tert-Amyl Methyl Ether	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
Tert Butyl Alcohol	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
tert-Butyl Ethyl Ether	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
1,1,1,2-Tetrachloroethane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrachloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Tetrahydrofuran	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
Toluene	9.4	ND(1.0)	ND(1.0)	108	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,3-Trichlorobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2,4-Trichlorobenzene	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,1,1-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)

Appendix E
 Table E-4 Select Groundwater Data from Xtramart Reports
 Final Remedial Investigation Report
 Operable Unit 2, Fletcher's Paint Works and Storage Facility
 Milford, New Hampshire

Sample ID Date Collected	XM MW-10 10/06/2008	XM MW-11 10/06/2008	XM MW-13 10/06/2008	XM MW-10 04/01/2009	XM MW-11 04/01/2009	XM MW-13 04/01/2009	XM MW-10 10/01/2009	XM MW-11 10/01/2009	XM MW-13 10/01/2009
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichlorofluoromethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2,3-Trichloropropane	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,2,4-Trimethylbenzene	16.2	ND(5.0)	ND(5.0)	29.0	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
1,3,5-Trimethylbenzene	9.0	ND(5.0)	ND(5.0)	10	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Xylene (total)	19.9	ND(1.0)	ND(1.0)	120	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
m,p-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane (via method 8011)	0.018	ND(0.015)	NA	ND(0.015)	NA	NA	NA	NA	NA

Notes:

NA - Sample analysis at this location did not include this analyte.

ND - Analyte was not detected. The number in parentheses is the associated reporting limit.

J - The analyte was positively identified; however, the associated numerical value is an estimated concentration only.